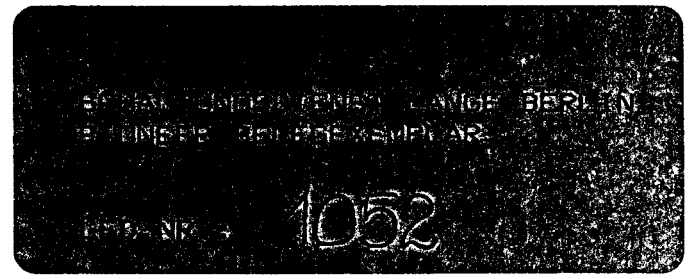
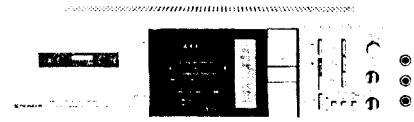
PIONEER

Service Manual





This photograph is CT-7R.

ORDER NO.
ARP-001-0

STEREO CASSETTE TAPE DECK

CT-7R
CT-6R

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
U.S. PIONEER ELECTRONICS CORPORATION 85 Oxford Drive, Moonachie, New Jersey 07074, U.S.A.
PIONEER ELECTRONIC (EUROPE) N.V. Luithagen-Haven 9, 2030 Antwerp, Belgium
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1. MECHANICAL DESCRIPTIONS

1.1 Mechanism Operation

The various mechanical sections of the recorder are operated using the capstan motor to provide the driving force. The various modes are activated by solenoid L and R, and these are controlled by commands from CPU PD6006.

Both the capstan and reel-motor are direct-drive motors fitted with a Hall sensing element. Reel-motor L and reel-motor R (hereafter called RM L, RM R) are used exclusively for tape take-up in the FF, REW, PLAY, and REC/PLAY modes. The direction of rotation and rotational speed of these motors are controlled by commands from CPU PD6006.

The right side capstan motor is the DD type, and the left side capstan motor is belt-driven by the right side-motor. A sub-rotor acts as the actual capstan. (Refer to Fig. 1-1).

The mechanism forming the right and left-hand side of the unit is essentially symmetrical in configuration, and in forward and reverse (hereafter abbreviated FWD, REV) operations, each side acts together. This description covers the mechanical operations for FWD movement.

■ Basic Operations of the Mechanism

The mechanism assumes three different states: STOP, PAUSE, and PLAY. Consequently, since it can travel in the FWD and REV direction, there are a total of six states possible. There is also a direction operation for switching between FWD and REV travel. Transition between the FWD and REV state will be described using only one example.

When the mechanism, presently in the FWD-PLAY mode, is switched to the REV-PLAY mode, a direction operation is required, then the mechanism will make the transition following the steps listed below. (Refer to Fig. 1-2).

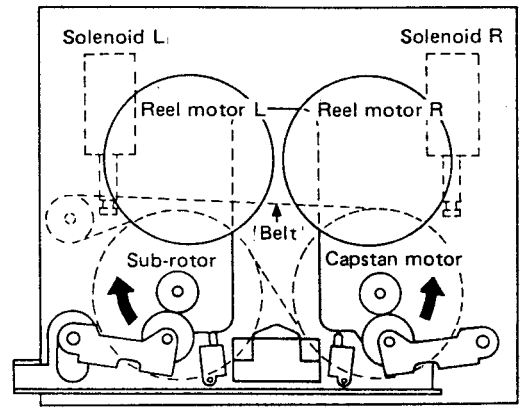


Fig. 1-1 Mechanical construction

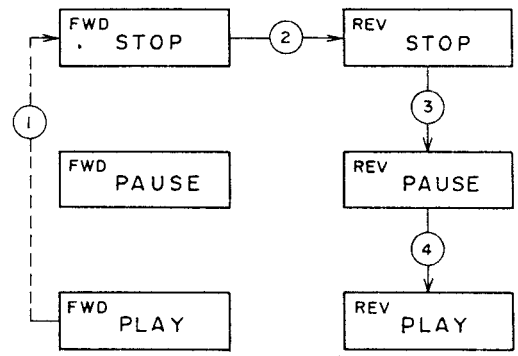


Fig. 1-2 Mechanism mode transition (example)

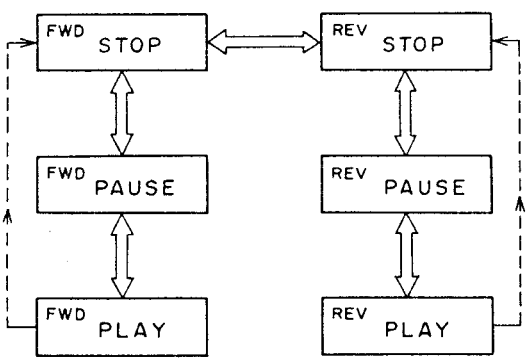
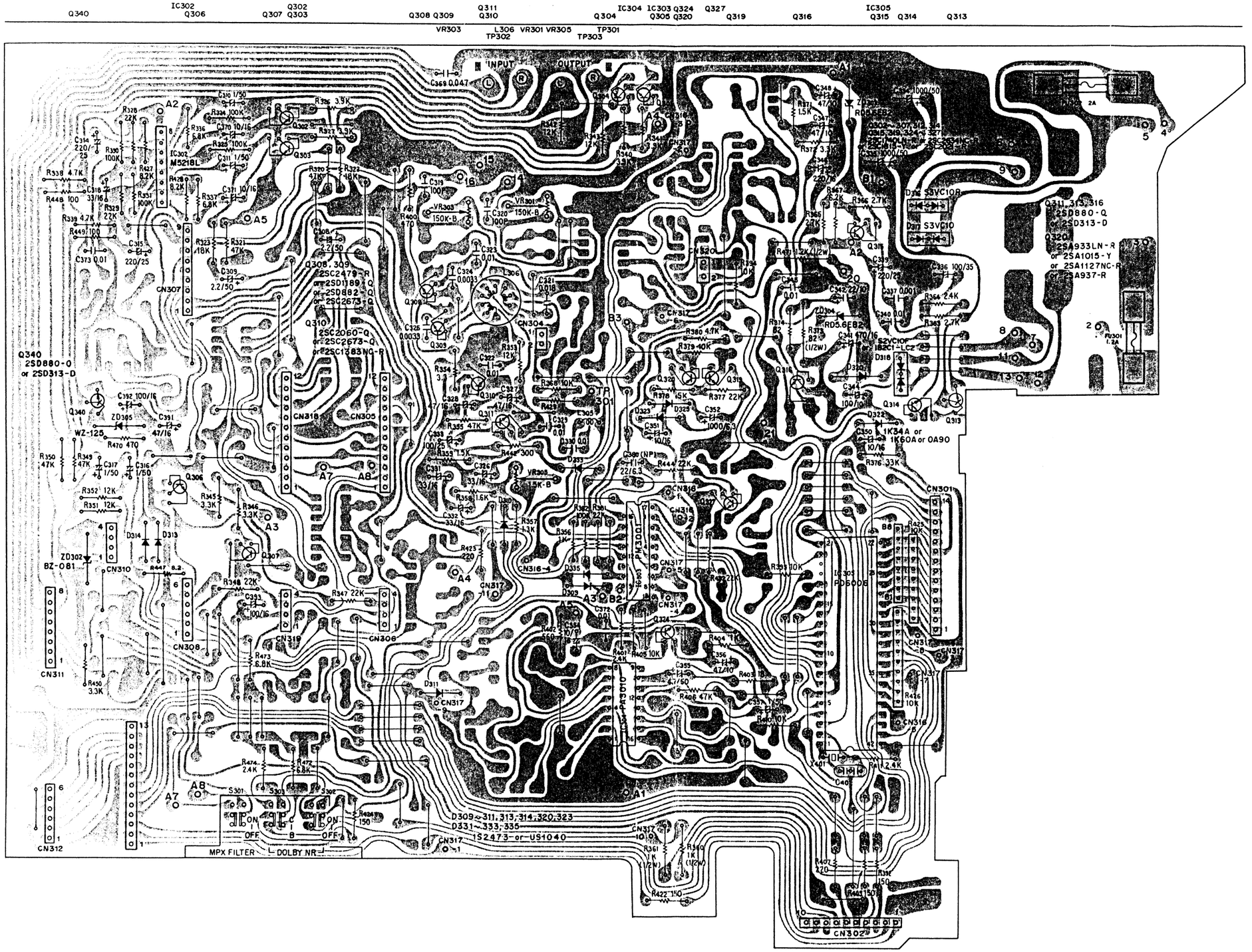
Mechanism Mode Transition Flow	State	Mode
	STOP state	STOP, DIRECTION (DIR)
	PAUSE state	PAUSE, PLAY/PAUSE, REC-PLAY/PAUSE, FF, REW.
	PLAY state	PLAY, REC/PLAY.

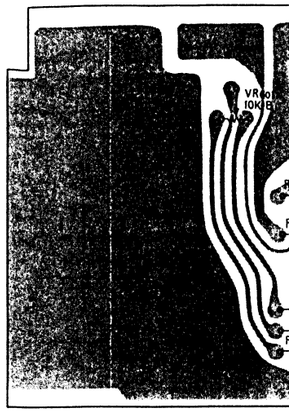
Fig. 1-3 Mechanism mode transition flow and modes

2. P.C. BOARD PATTERNS

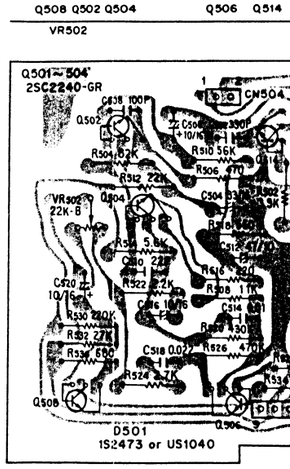
Mother Assembly (RWX-593)



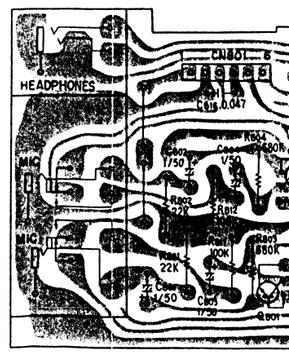
Dolby NR Assembly (RWX-



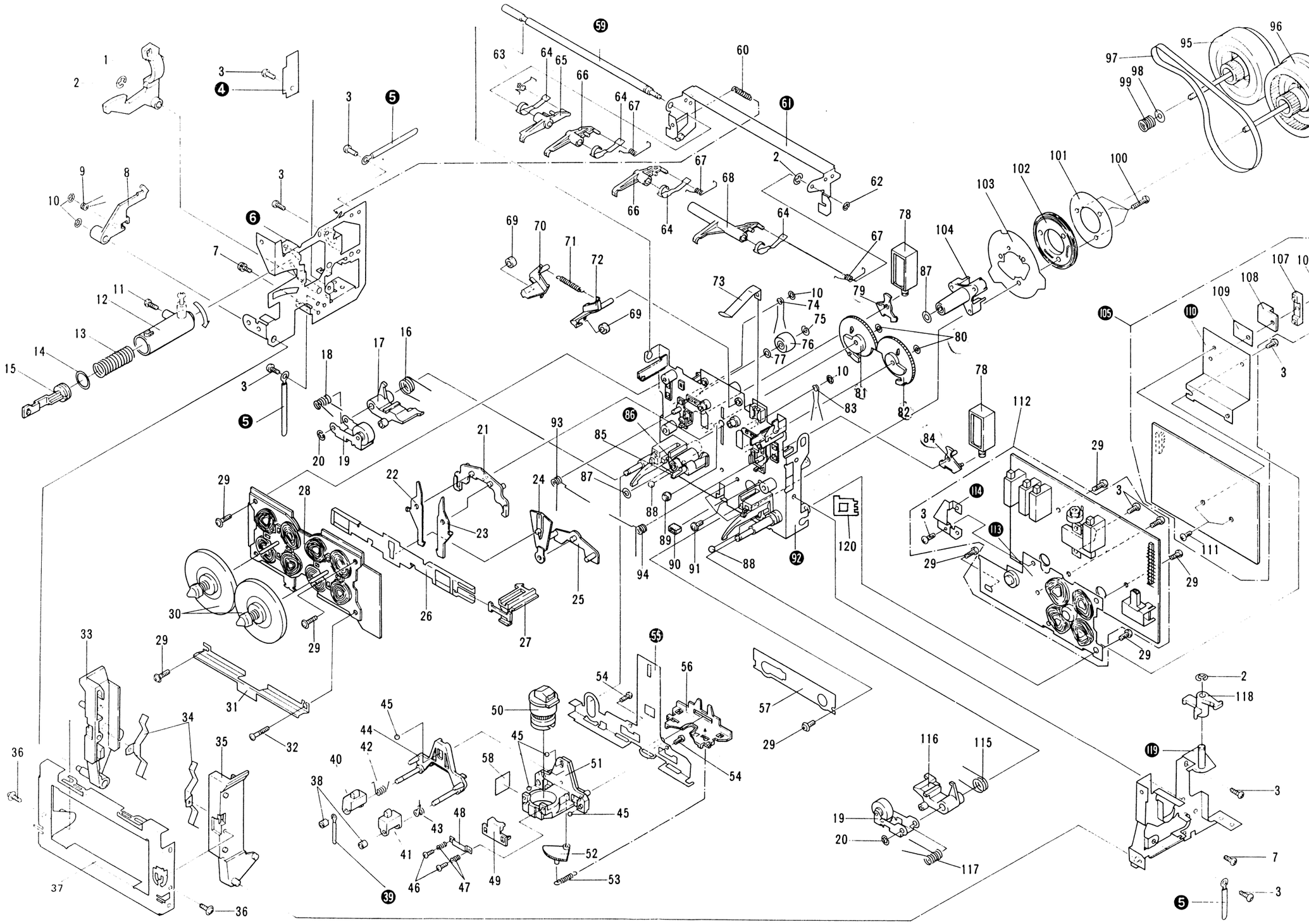
Amplifier Assembly (RWF-1

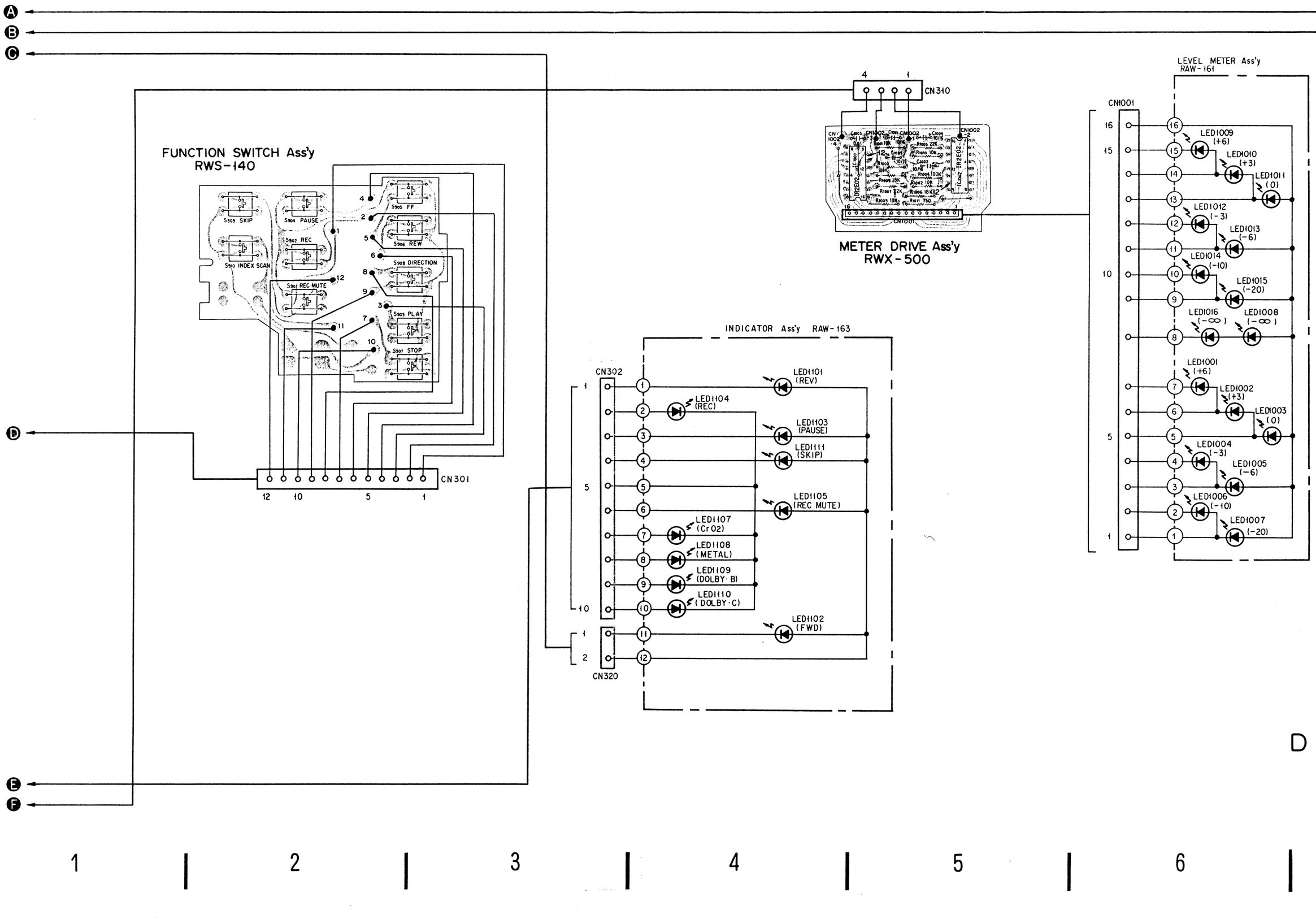


Jack Assembly (RWX-575)



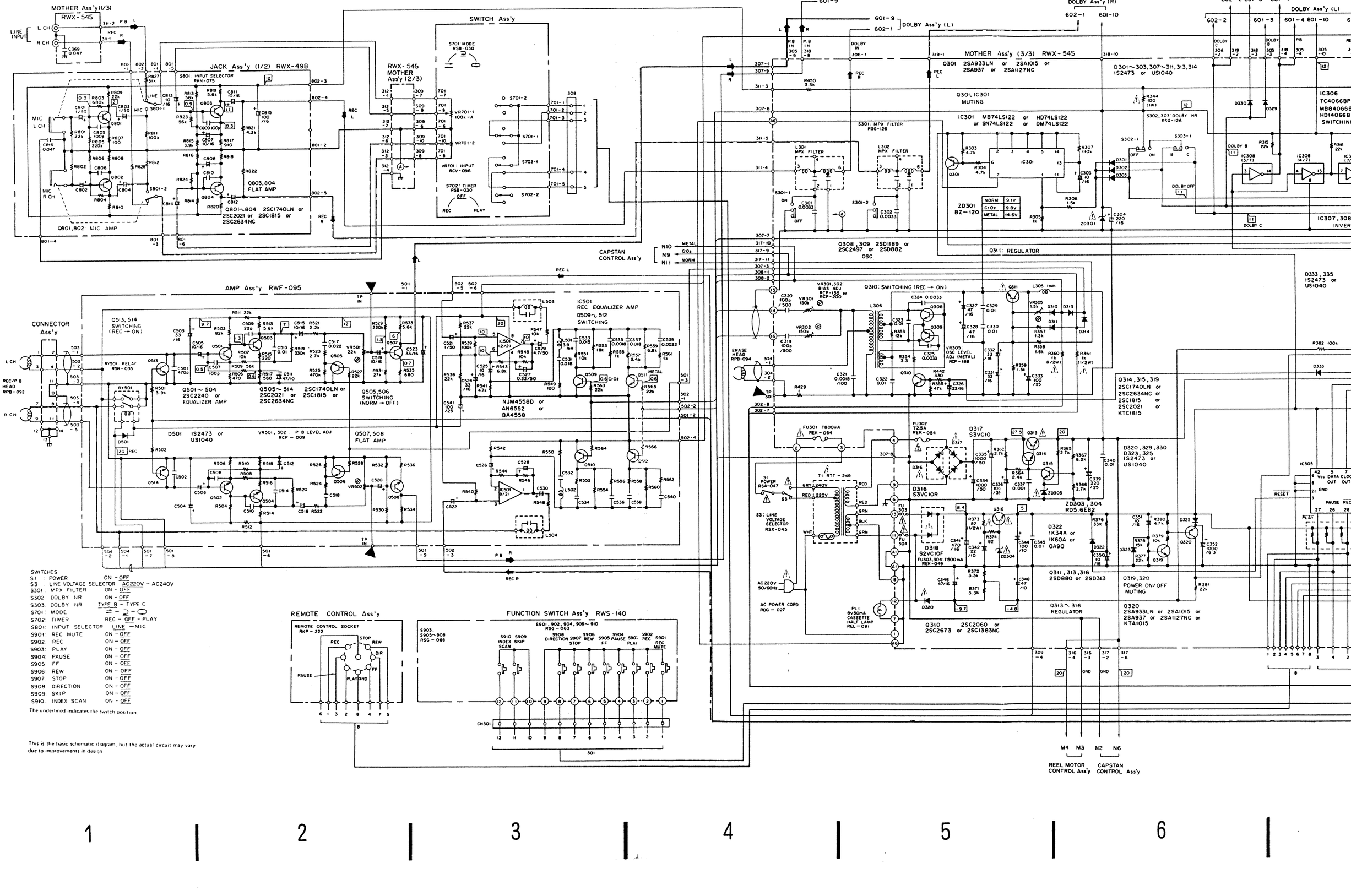
Tape Transport Mechanism RYM-157




FUNCTION SWITCH Ass'y
RWS-140
S909 SKIP
S904 PAUSE
S902 REC
S910 INDEX SCAN
S901 REC MUTE
S905 FF
S906 REW
S908 DIRECTION
S903 PLAY
S907 STOP
CN301
12 10 5 1
METER DRIVE Ass'y
RWX-500
CN310
CN1001
INDICATOR Ass'y RAW-163
CN302
LED1101 (REV)
LED1104 (REC)
LED1103 (PAUSE)
LED1111 (SKIP)
LED1105 (REC MUTE)
LED1107 (Cr02)
LED1108 (METAL)
LED1109 (DOLBY·B)
LED1110 (DOLBY·C)
LED1102 (FWD)
CN320
LEVEL METER Ass'y
RAW-161
CN1001
LED1009 (+6)
LED1010 (+3)
LED1011 (0)
LED1012 (-3)
LED1013 (-6)
LED1014 (-10)
LED1015 (-20)
LED1016 (-∞)
LED1008 (-∞)
LED1001 (+6)
LED1002 (+3)
LED1003 (0)
LED1004 (-3)
LED1005 (-6)
LED1006 (-10)
LED1007 (-20)

3. SCHEMATIC DIAGRAM

Signal and Control Section


MOTHER Ass'y(1/3) RWX-545
JACK Ass'y (1/2) RWX-498
SWITCH Ass'y
RWX-545 MOTHER Ass'y (2/3)
Q801,802 MIC AMP
Q803,804 FLAT AMP
Q801~804 2SC1740LN or 2SC2021 or 2SC1815 or 2SC2634NC
AMP Ass'y RWF-095
CONNECTOR Ass'y
Q513,514 SWITCHING (REC → ON)
Q501~504 2SC2240 or EQUALIZER AMP
Q505~514 2SC2021 or 2SC1740LN or 2SC1815 or 2SC2634NC
Q505,506 SWITCHING (NORM → OFF)
Q507,508 FLAT AMP
IC501 REC EQUALIZER AMP Q509~512 SWITCHING
NJM4558D or AN6552 or BA4558
D501 1S2473 or US1040
VR501,502 P.B LEVEL ADJ RCP-009
CAPSTAN CONTROL Ass'y
DOLBY Ass'y (R)
DOLBY Ass'y (L)
MOTHER Ass'y (3/3) RWX-545
Q301 2SA933LN or 2SA1015 or 2SA937 or 2SA1127NC
D301~303,307~311,313,314 1S2473 or US1040
IC306 TC4066BP MB84066B HD14066B SWITCHING
Q301, IC301 MUTING
IC301 MB74LS122 or HD74LS122 or SN74LS122 or DM74LS122
S301 MPX FILTER RSG-126
S302,303 DOLBY NR RSG-126
L301 MPX FILTER
L302 MPX FILTER
ZD301 BZ-120
Q308,309 2SD1189 or 2SC2497 or 2SD882 OSC
Q311 REGULATOR
Q310 SWITCHING (REC → ON)
VR301,302 BIAS ADJ RCP-155 or RCP-200
VR305 OSC LEVEL ADJ (METAL) RCP-188
ERASE HEAD RPB-094
REC/P.B HEAD RPB-092
FU301 T800mA REK-064
FU302 T2.5A REK-054
FU303,304 T500mA REK-049
D316 S3VC10R
D317 S3VC10
D318 S2VC10F
ZD303,304 RD5.6EB2
T1 RTT-249
S1 POWER RSA-047
S3 LINE VOLTAGE SELECTOR RSX-045
AC 220V 50/60Hz
AC POWER CORD RDG-027
PL1 8V50mA CASSETTE HALF LAMP REL-091
Q310 2SC2060 or 2SC1383NC
Q313~316 REGULATOR
D320,329,330 D323,325 1S2473 or US1040
D322 1K34A or 1K60A or 0A90
Q311,313,316 2SD880 or 2SD313
Q319,320 POWER ON/OFF MUTING
Q320 2SA933LN or 2SA1015 or 2SA937 or 2SA1127NC or KTA1015
Q314,315,319 2SC1740LN or 2SC2634NC or 2SC1815 or 2SC2021 or KTC1815
D333,335 1S2473 or US1040
REMOTE CONTROL Ass'y
REMOTE CONTROL SOCKET RKP-222
FUNCTION SWITCH Ass'y RWS-140
S901,902,904,909~910 RSG-063
S903,S905~908 RSG-088
REEL MOTOR CONTROL Ass'y
CAPSTAN CONTROL Ass'y

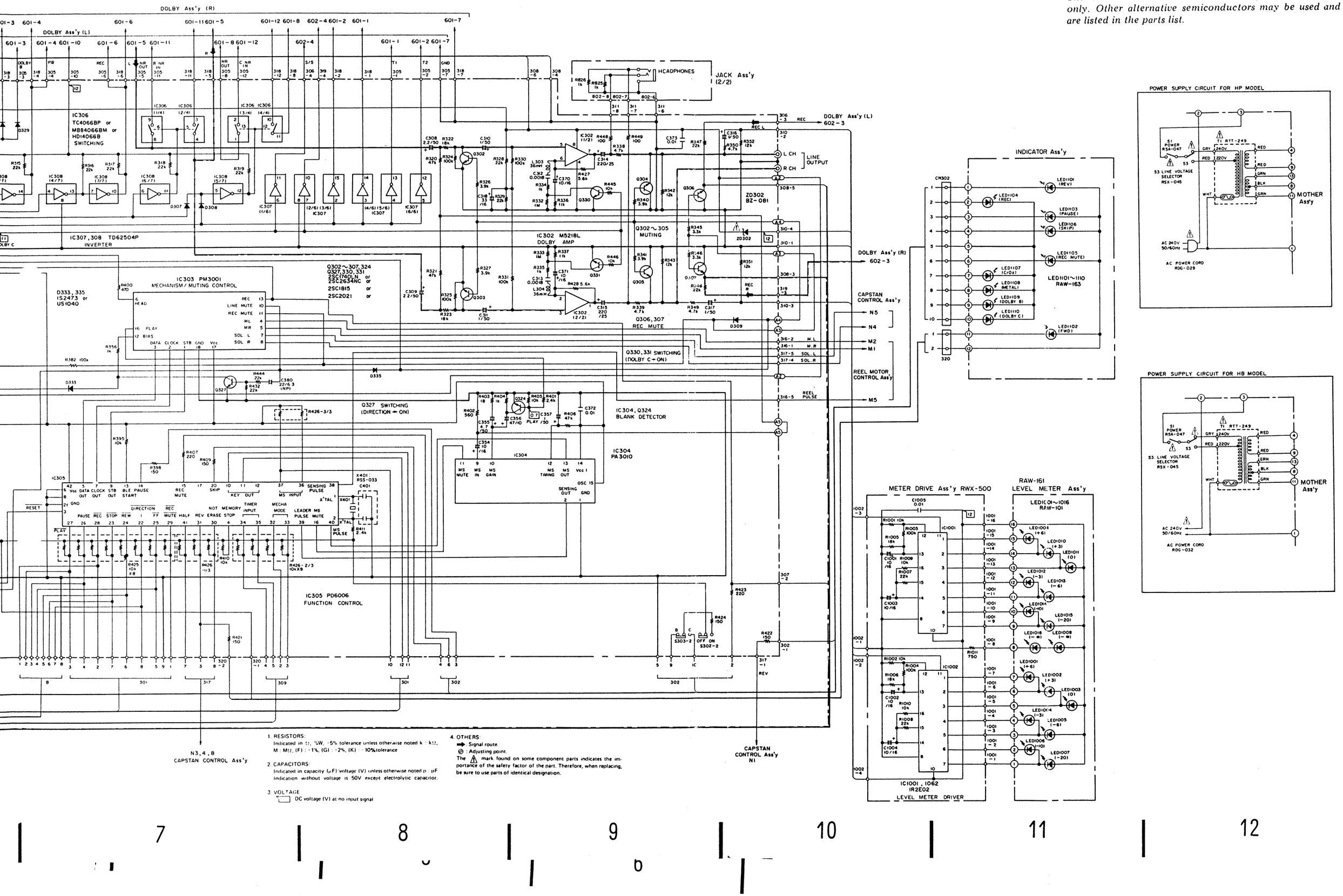
SWITCHES

S1	POWER	ON - OFF
S3	LINE VOLTAGE SELECTOR	AC220V - AC240V
S301	MPX FILTER	ON - OFF
S302	DOLBY NR	ON - OFF
S303	DOLBY NR	TYPE B - TYPE C
S701	MODE	⇄ - ⊃ - ⊂
S702	TIMER	REC - OFF - PLAY
S801	INPUT SELECTOR	LINE - MIC
S901	REC MUTE	ON - OFF
S902	REC	ON - OFF
S903	PLAY	ON - OFF
S904	PAUSE	ON - OFF
S905	FF	ON - OFF
S906	REW	ON - OFF
S907	STOP	ON - OFF
S908	DIRECTION	ON - OFF
S909	SKIP	ON - OFF
S910	INDEX SCAN	ON - OFF

The underlined indicates the switch position.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design

NOTE:
The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.



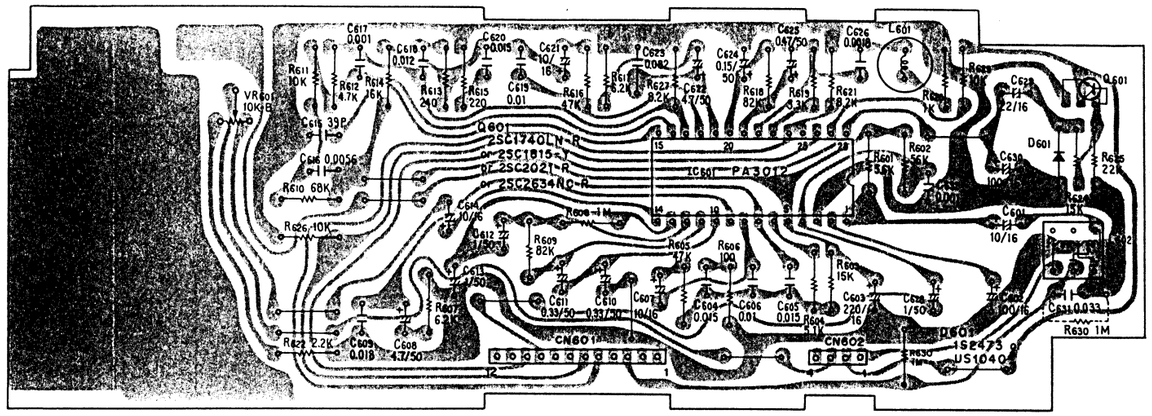
1. RESISTORS:
Indicated in Ω, ¼W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% tolerance

2. CAPACITORS:
Indicated in capacity (μF) voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

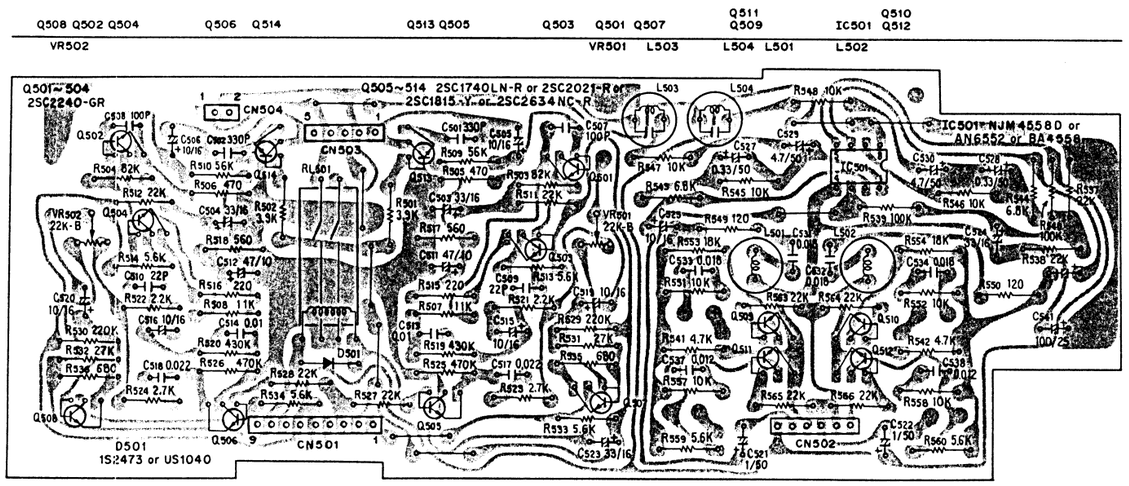
3. VOLTAGE
DC voltage (V) at no input signal

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

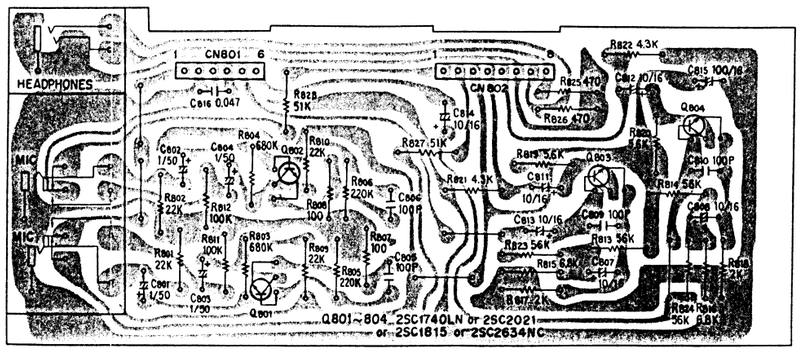
Dolby NR Assembly (RWX-597)

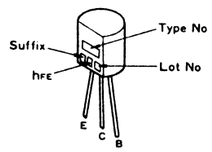
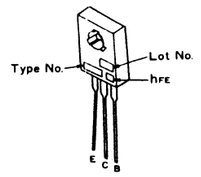
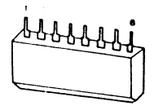
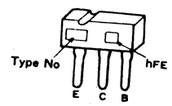
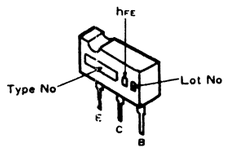
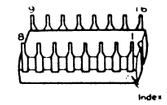
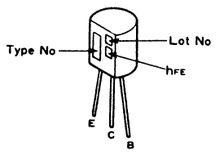
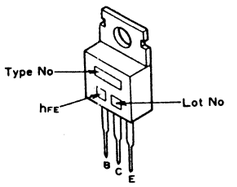
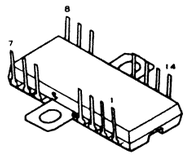
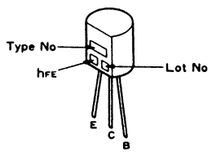
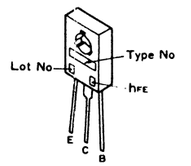
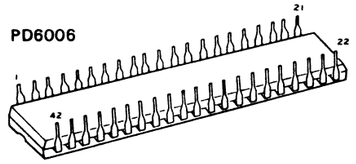
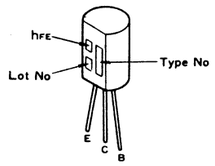
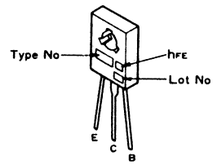
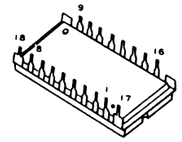
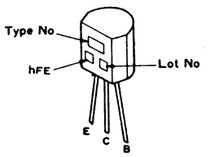
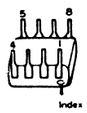
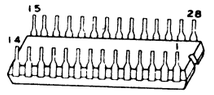


Amplifier Assembly (RWF-105)



Jack Assembly (RWX-575)



2SA933LN 2SC1740LN		2SC2497		M5218L		A
2SA937 2SC2021		2SC2673		IR2E02 PA2007 PA2009 PA3010		—
2SA1015 2SC1815 2SC2240		2SD313 2SD880		PA2012		B
2SA1127NC 2SC2634NC		2SD882		PD6006		C
2SC1383NC		2SD1189		PM3001		—
2SC2060		AN6552 BA4558 NJM4558D		PA3012		D

3. SCHEMATIC DIAGRAMS

(KU AND KC TYPES)

RWX-577 (D,D/G)
RWX-595 (HE,HB,HP)
MOTHER Ass'y (1/3) RWX-593 (KC,KU)

JACK Ass'y (1/2) RWX-575

SWITCH Ass'y

RWX-577(D,D/G)
RWX-595(HE,HB,HP)
RWX-593(KC,KU)
MOTHER Ass'y (2/3)

RWF-101 (D,D/G)
AMP Ass'y RWF-105 (KC,KU,HE,HB,HP)

CAPSTAN CONTROL Ass'y

Q340 2SD880-D or 2SD313-D REGULATOR

IC302 MS218L DOLBY AMP

Q311 REGULATOR

Q310 SWITCHING (REC-ON)

Q314,315,319 2SC1740LN-R or 2SC2634NC-R or 2SC1815-Y or 2SC2021-R

D323,325 1S2473 or US1040

Q320 2SA933LN-R or 2SA937-R or 2SA1015-Y or 2SA1127NC-R

D320 1S2473 or US1040

Q311,313,316 2SD880-D or 2SD313-D

Q313~316 REGULATOR

Q319,320 POWER ON/OFF MUTING

Q302~307 2SC1740LN-R or 2SC2021-R or 2SC1815-Y or 2SC2634NC-R

Q306,307 REC MUTING

Q302~305 MUTING

D310~311,313,314,340 1S2473 or US1040

Q327 2SC1740LN-R or 2SC2021-R or 2SC1815-Y or 2SC2634NC-R

Q308,309 2SD1189-Q or 2SC2497-Q or 2SD882-Q OSC

Q330 2SC2060-Q or 2SC2673-Q or 2SC1383NC-R

Q340 2SD880-D or 2SD313-D REGULATOR

Q501~504 2SC2240-GR EQUALIZER AMP

Q505~514 2SC1740LN-R or 2SC2021-R or 2SC1815-Y or 2SC2634NC-R

Q507,508 FLAT AMP

Q509~512 SWITCHING

IC501 NJM4558D or AN6552 or BA4558

IC501 REC EQUALIZER AMP

Q513,514 SWITCHING (REC-ON)

Q803,804 FLAT AMP

Q801~804 2SC1740LN-R or 2SC2021-R or 2SC1815-Y or 2SC2634NC-R

Q801,802 MIC AMP

D501 1S2473 or US1040

D316 S3VC10R

D317 S3VC10

D318 S2VC10F or 1B2C1-LC2

ZD303,304 RD5.6E82

ZD305 WZ-125

D322 1K34A or 1K60A or 0A90

LED1 SLF-201C CASSETTE HALF

S1 POWER RSA-055

AC POWER CORD RDG-022 or RDG-030

FU301 2A REK-055

FU302 2A REK-056

T1 RTT-239

S301 MPX FILTER RSG-126

S302 DOLBY NR RSG-126

S303 DOLBY NR RSG-126

VR301~302 BIAS ADJ RCP-200

VR301,302 P.B LEVEL ADJ RCP-009

VR305 OSC LEVEL ADJ (METAL) RCP-188

ERASE HEAD RPB-084

HEAD Ass'y RXA-333

CONNECTOR Ass'y

RY501 RELAY RSH-030

JACK Ass'y (1/2) RWX-575

SW501 INPUT SELECTOR RWN-075

S701 MODE RSB-080

S702 TIMER RSB-030

VR701-1 100k-A

VR701-2

VR701 INPUT RCV-086

CN309

CN301

REMOTE CONTROL Ass'y

REMOTE CONTROL SOCKET RKP-222

FUNCTION SWITCH Ass'y

S901,902,904,909,910 RSG-063

S903,905~908 RSG-088

CAPSTAN CONTROL Ass'y

N10 METAL
N9 CrO2
N11 NORM

M4 M3 N2 N6

REEL MOTOR CONTROL Ass'y

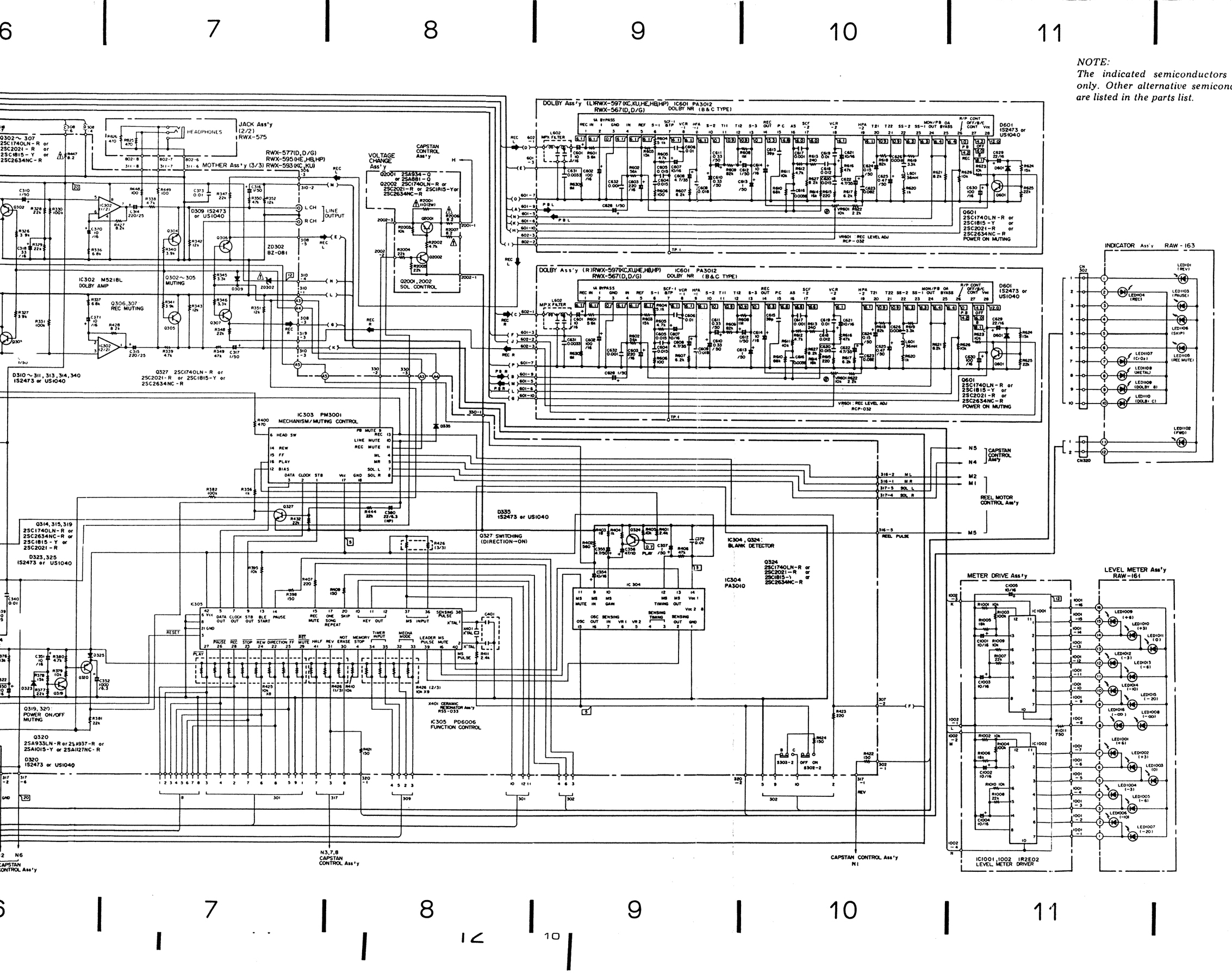
CAPSTAN CONTROL Ass'y

SWITCHES

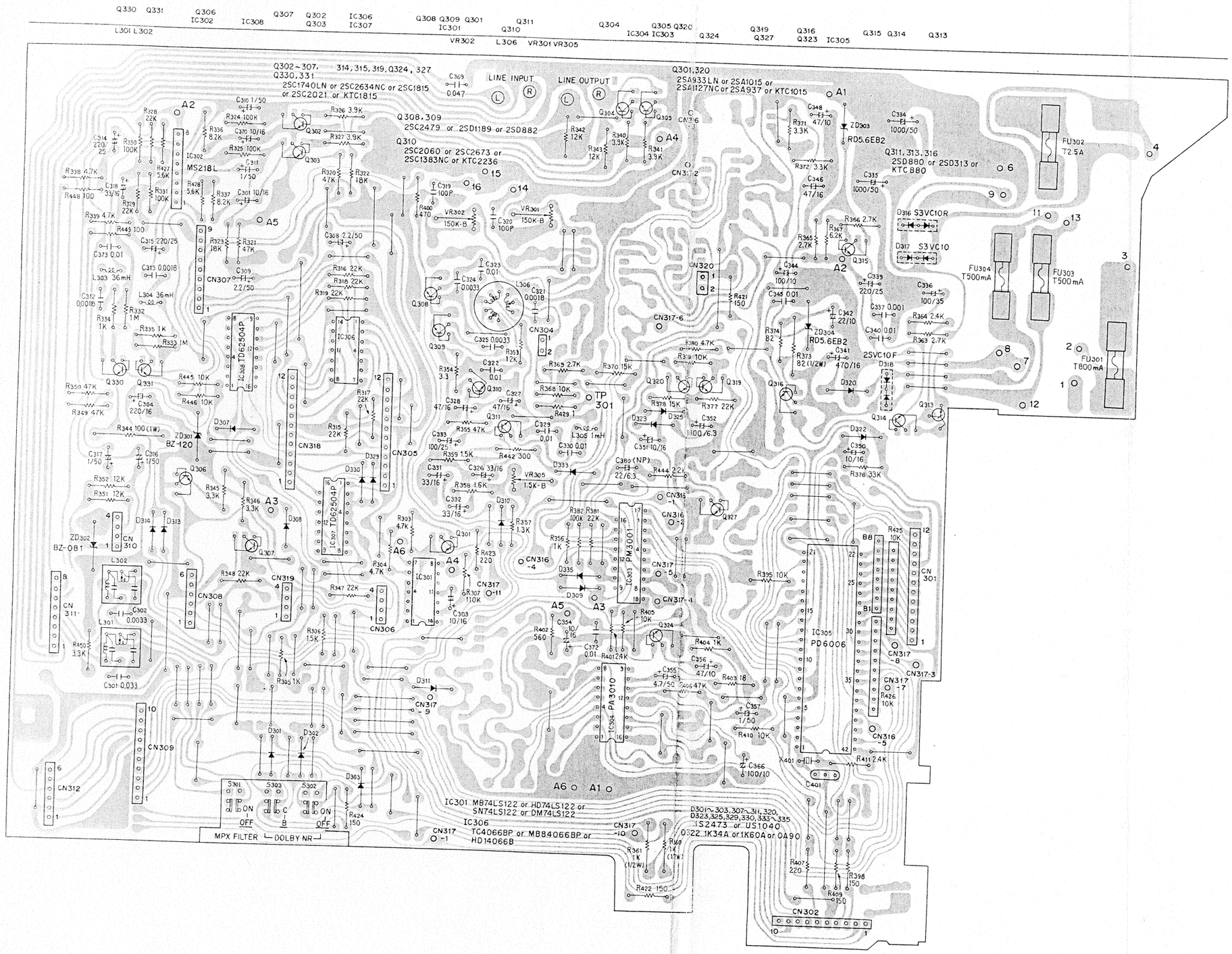
S1	POWER	ON - OFF
S301	MPX FILTER	ON - OFF
S302	DOLBY NR	ON - OFF
S303	DOLBY NR	TYPE B - TYPE C
S701	MODE	⇌ - ⊃ - ⊂
S702	TIMER	REC - OFF - PLAY
S801	INPUT SELECTOR	LINE - MIC
*S901	REC MUTE	ON - OFF
S902	REC	ON - OFF
S903	PLAY	ON - OFF
S904	PAUSE	ON - OFF
S905	FF	ON - OFF
S906	REW	ON - OFF
S907	STOP	ON - OFF
S908	DIRECTION	ON - OFF
S909	SKIP	ON - OFF
S910	INDEX SCAN	ON - OFF

The underlined indicates the switch position.

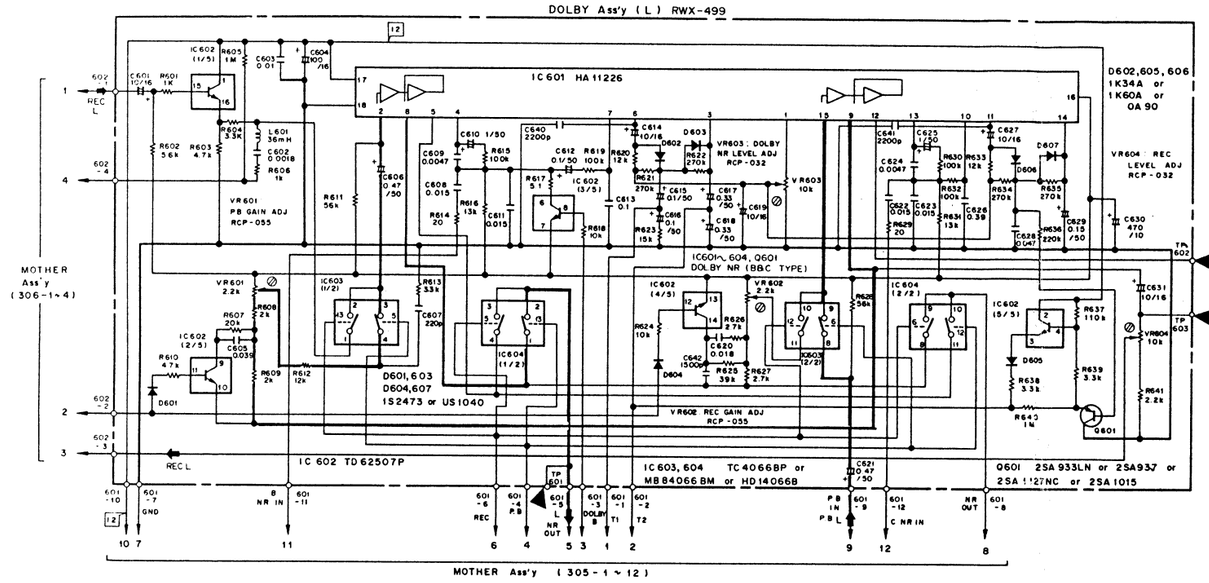
NOTE:
The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.

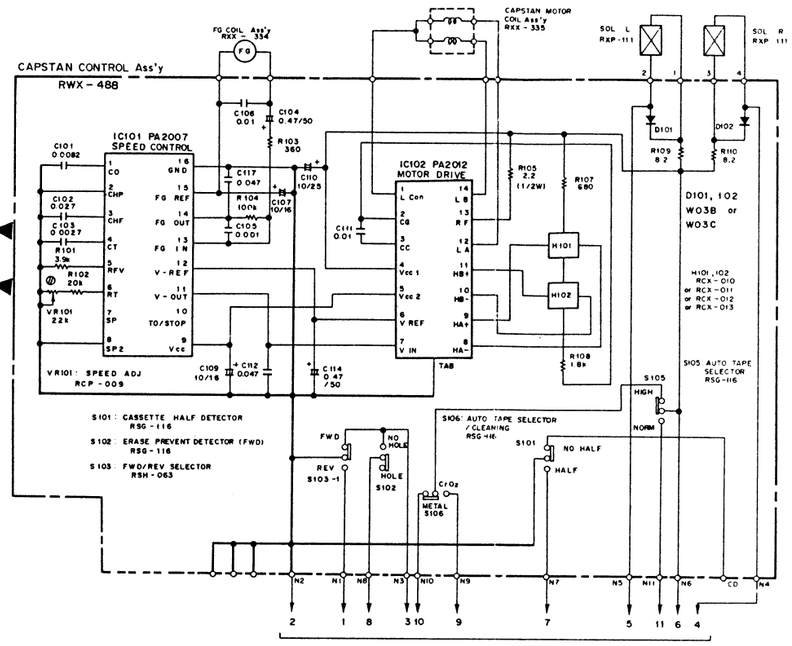

JACK Ass'y (2/2) RWX-575
HEADPHONES
MOTHER Ass'y (3/3) RWX-593(KC,KU)
RWX-577(D,D/G)
RWX-595(HE,HB,HP)
VOLTAGE CHANGE Ass'y
CAPSTAN CONTROL Ass'y
Q201 2SA934-Q or 2SA881-Q
Q202 2SC1740LN-R or 2SC2021-R or 2SC1815-Y or 2SC2634NC-R
Q201, 202 SOL CONTROL
L CH
R CH
LINE OUTPUT
D309 1S2473 or US1040
ZD302 BZ-081
IC302 M5218L DOLBY AMP
Q302~305 MUTING
Q306,307 REC MUTING
D310~311, 313, 314, 340 1S2473 or US1040
Q327 2SC1740LN-R or 2SC2021-R or 2SC1815-Y or 2SC2634NC-R
DOLBY Ass'y (L)RWX-597(KC,KU,HE,HB,HP) IC601 PA3012 RWX-567(D,D/G) DOLBY NR (B&C TYPE)
DOLBY Ass'y (R)RWX-597(KC,KU,HE,HB,HP) IC601 PA3012 RWX-567(D,D/G) DOLBY NR (B&C TYPE)
D601 1S2473 or US1040
Q601 2SC1740LN-R or 2SC1815-Y or 2SC2021-R or 2SC2634NC-R POWER ON MUTING
VR601 REC LEVEL ADJ RCP-032
IC303 PM3001 MECHANISM/MUTING CONTROL
D330
D335 1S2473 or US1040
Q327 SWITCHING (DIRECTION-ON)
IC304, Q324: BLANK DETECTOR
IC304 PA3010
Q324 2SC1740LN-R or 2SC2021-R or 2SC1815-Y or 2SC2634NC-R
IC305 PD6006 FUNCTION CONTROL
X401 CERAMIC RESONATOR Ass'y RSS-033
Q314, 315, 319 2SC1740LN-R or 2SC2634NC-R or 2SC1815-Y or 2SC2021-R
Q323, 325 1S2473 or US1040
Q319, 320 POWER ON/OFF MUTING
Q320 2SA933LN-R or 2SA937-R or 2SA1015-Y or 2SA1127NC-R
D320 1S2473 or US1040
S303-2 OFF ON
CAPSTAN CONTROL Ass'y
REEL MOTOR CONTROL Ass'y
REEL PULSE
N1 CAPSTAN CONTROL Ass'y
N3,7,8 CAPSTAN CONTROL Ass'y
N6 CAPSTAN CONTROL Ass'y
INDICATOR Ass'y RAW-163
LED1001 (REV)
LED1002 (FWD)
LED1003 (PAUSE)
LED1004 (REC)
LED1005 (REC MUTE)
LED1006 (SKIP)
LED1007 (Cr O2)
LED1008 (METAL)
LED1009 (DOLBY B)
LED1010 (DOLBY C)
METER DRIVE Ass'y
LEVEL METER Ass'y RAW-161
IC1001, 1002 IR2E02 LEVEL METER DRIVER

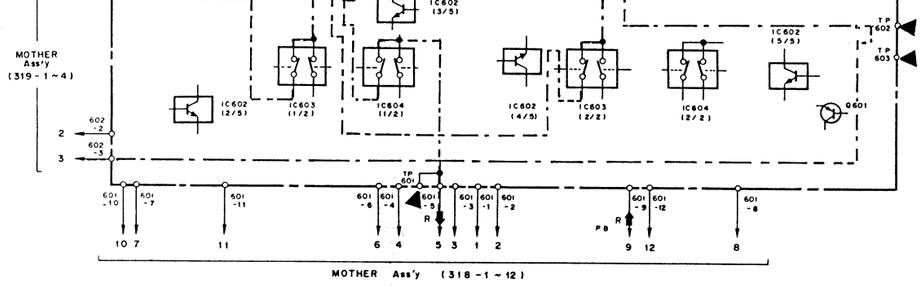
4. MOTHR ASSEBLY(RWX-545)



DOLBY NR and Mother Section







1. RESISTORS
Indicated in Ω, 1/4W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% tolerance

2. CAPACITORS
Indicated in capacity (μF) voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE
DC voltage (V) at no input signal

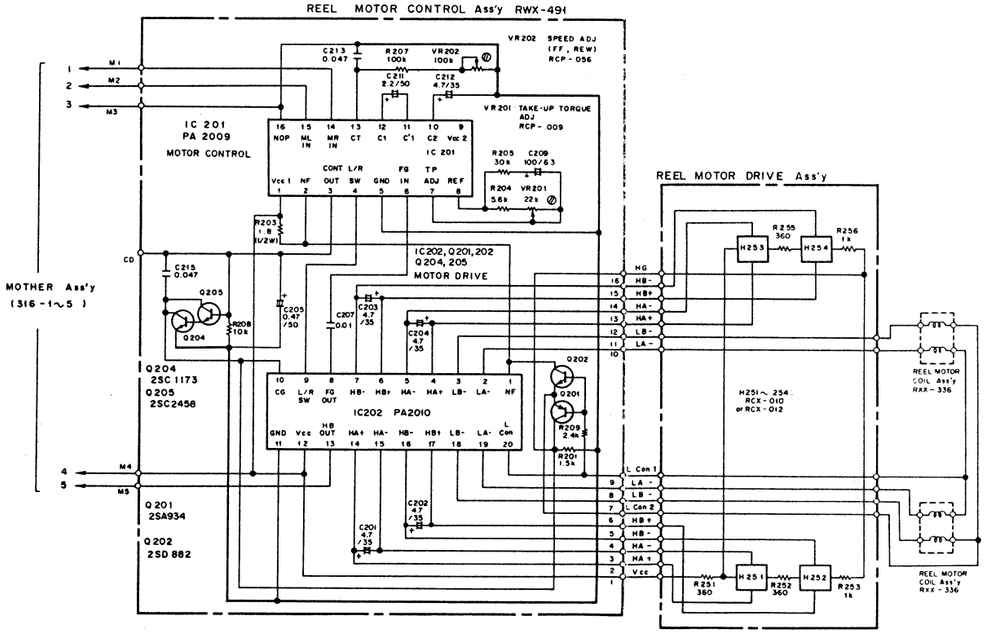
4. OTHERS
Signal route
Adjusting point
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

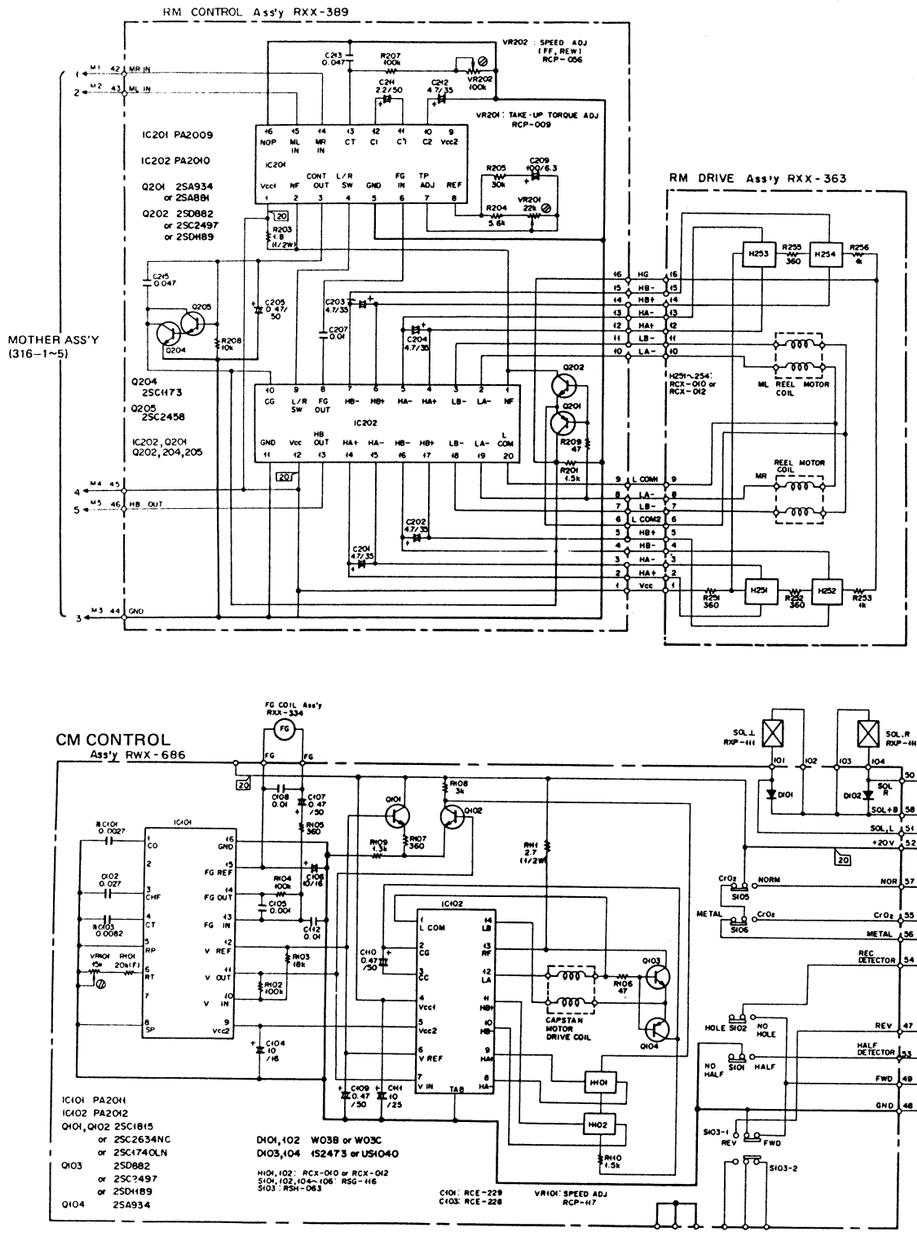
SWITCHES
SI01 CASSETTE HALF DETECTOR NO HALF – HALF
SI02 ERASE PREVENT DETECTOR (FWD) HOLE – NO HOLE
SI03 FWD/REV SELECTOR FWD – REV
SI05 AUTO TAPE SELECTOR NORM – HIGH
SI06 AUTO TAPE SELECTOR / CLEANING CrO2/ON – METAL/OFF

The underlined indicates the switch position.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

NOTE;
Playback signal route ——
Recording signal route — — —





SWITCHES
CM CONTROL Ass'y
S101: CASSETTE HALF DETECTOR NO HALF – HALF
S102: ERASE PREVENT DETECTOR (FWD) NO HOLE – HOLE
S103: FWD/REV SELECTOR FWD – REV
S105: AUTO TAPE SELECTOR NORM – CrO_2
S106: AUTO TAPE SELECTOR CrO_2 – METAL
The underlined indicates the switch position

RM Full Assembly B (RXX-389)

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★★	PA2009	IC201
★★	PA2010	IC202
★★	2SA934 (2SA881)	Q201
★★	2SD882 (2SC2497-R) (2SD1189)	Q202
★★	2SC2458	Q205
★★	2SC1173	Q204

CAPACITORS

Mark	Part No.	Symbol & Description
	CEA 4R7M 35	C201, C204, C212
	CEA R47M 50	C205
	CEA 2R2M 50	C211
	CEA 101M 6R3	C209
	CEA 4R7M 35	C202, C203
	CQMA 373K 50	C213
	CKDYF 103Z 50	C207
	CKDYF 473Z 50	C215

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
	RD¼PM □□□J	R251–R253, R255, R256

CM Control Assembly (RWX-686)

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★★	PA2011	IC101
★★	PA2012	IC102
★★	2SC1815 (2SC2634NC) (2SC1740LN)	Q101, Q102
★★	2SA934	Q104
★★	2SD882 (2SC2497-R) (2SD1189)	Q103
★	W03B (W03C)	D101, D102
★	RCX-010 (RCX-012)	H101, H102 Hall device A (Hall device C)

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
★	RCP-009	VR201 Semi-fixed (22k-B)
★	RCP-056	VR202 Semi-fixed (100k-B)
	RD¼PM □□□J	R201, R204, R205, R207, R209
	RD½PS 1R8J	R203

OTHERS

Mark	Part No.	Symbol & Description
	REE-051	Spacer
	RKH-005	Transistor holder
	RBA-026	Screw

SWITCHES

Mark	Part No.	Symbol & Description
★★	RSG-116	S101, S102, S105, S106 Push switch
★★	RSH-063	S103 Slide switch

CAPACITORS

Mark	Part No.	Symbol & Description
	RCE-229	C101 Film (0.0027)
	CEA R47M 50	C107, C109, C110
	CEA 100M 16	C104, C106
	CEA 100M 25	C111
	CQMA 273K 50	C102
	RCE-228	C103 Film (0.0082)
	CKDYF 102Z 50	C105
	CKDYF 103Z 50	C108, C112

RM Assembly (RXX-363)

SEMICONDUCTORS

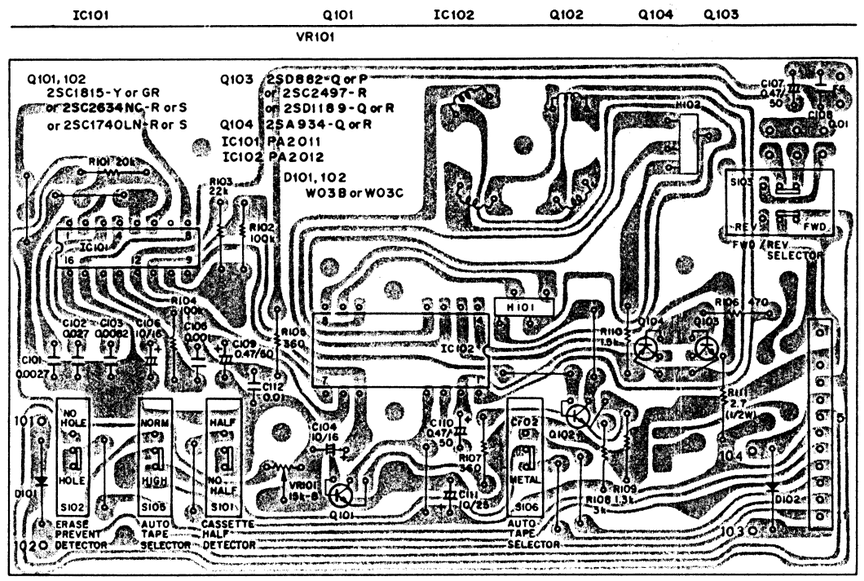
Mark	Part No.	Symbol & Description
★	RCX-010 (RCX-012)	H251–H254 Hall device A (Hall device C)
★	TLN-104	D251

RESISTORS

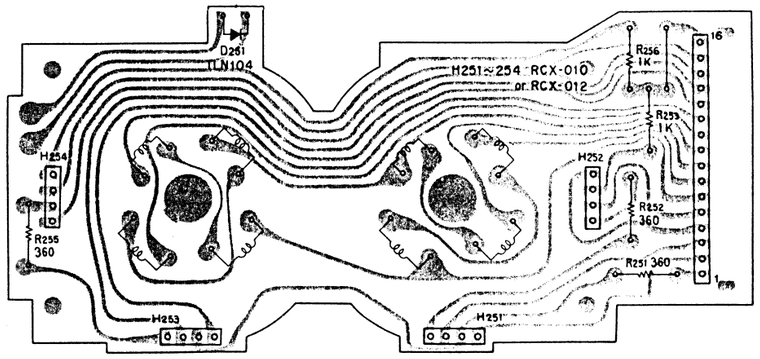
Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
★	RCP-117	VR101 Semi-fixed (15k-B)
	RN¼PQ 203F	R100
	RD¼PS 2R7J	R111
	RD¼PM □□□J	Other resistors

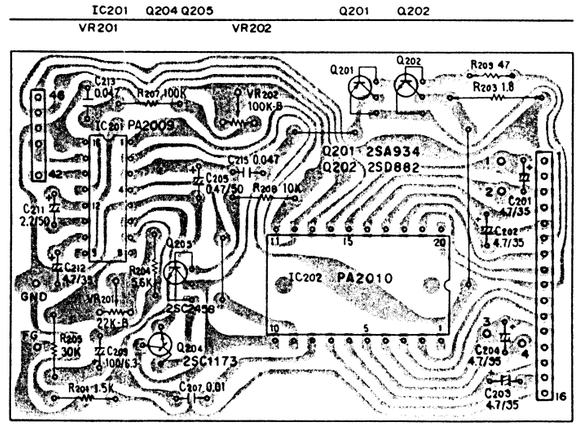
CM CONTROL Ass'y RWX-686



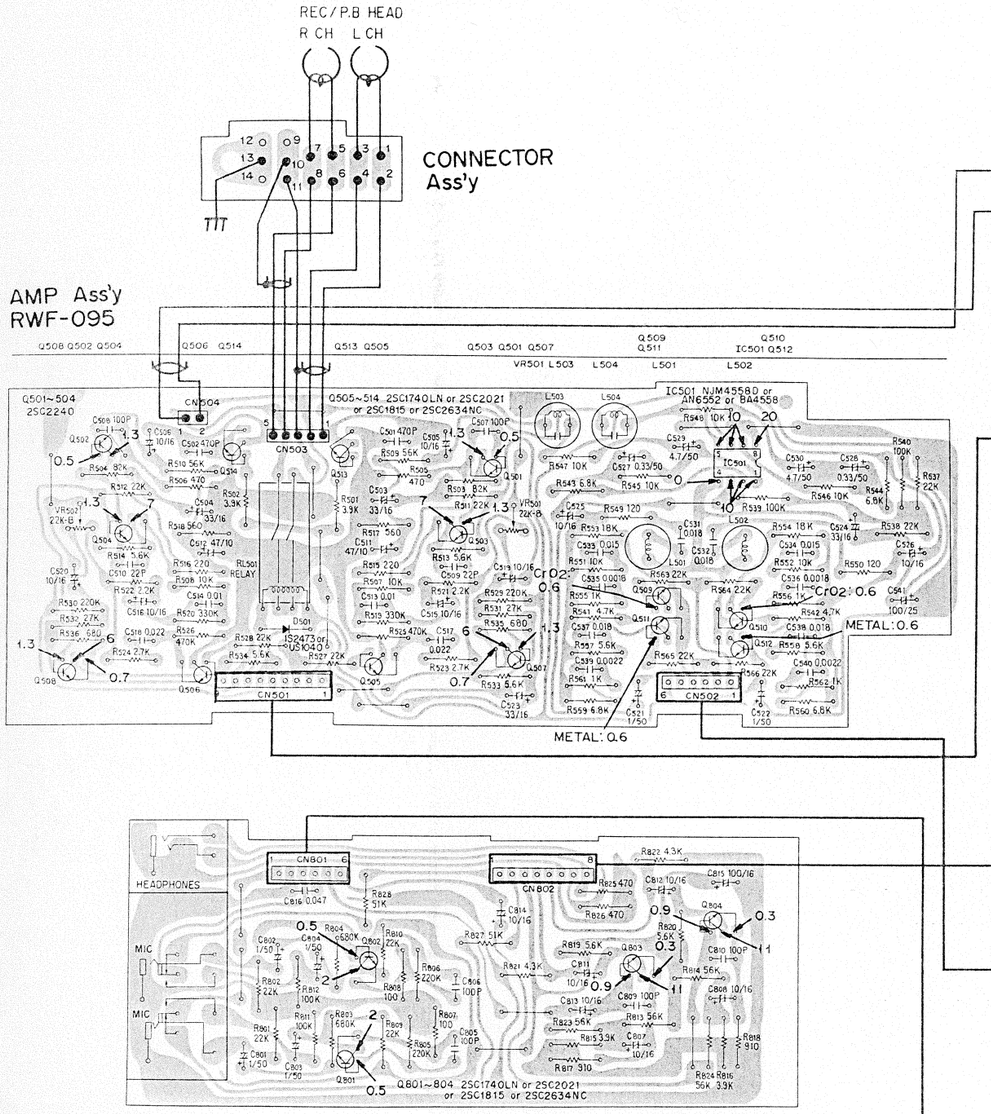
RM DRIVE Ass'y RXX-363



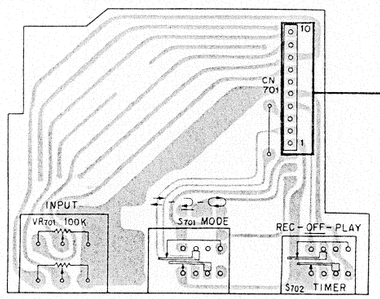
RM CONTROL Ass'y RXX-389

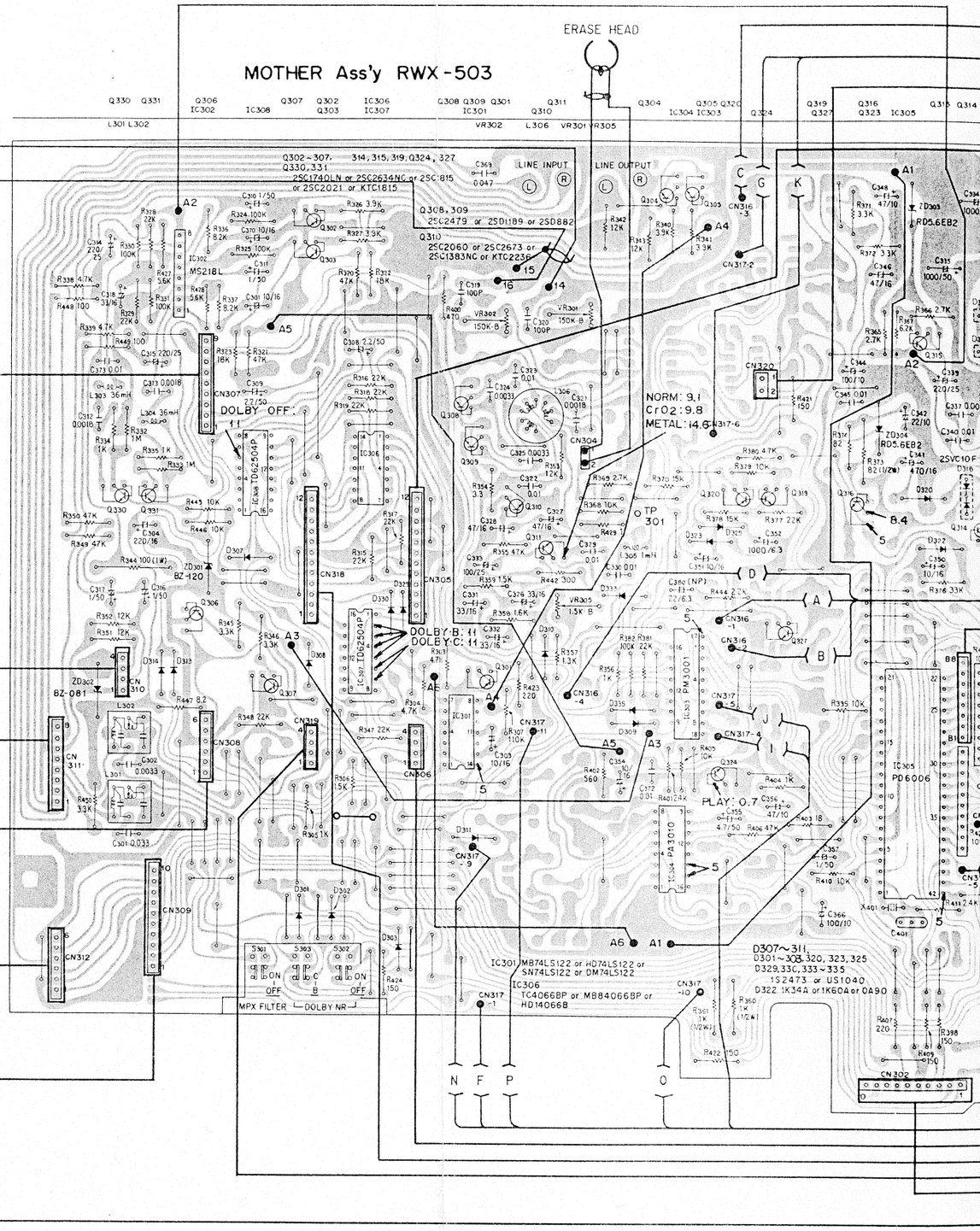


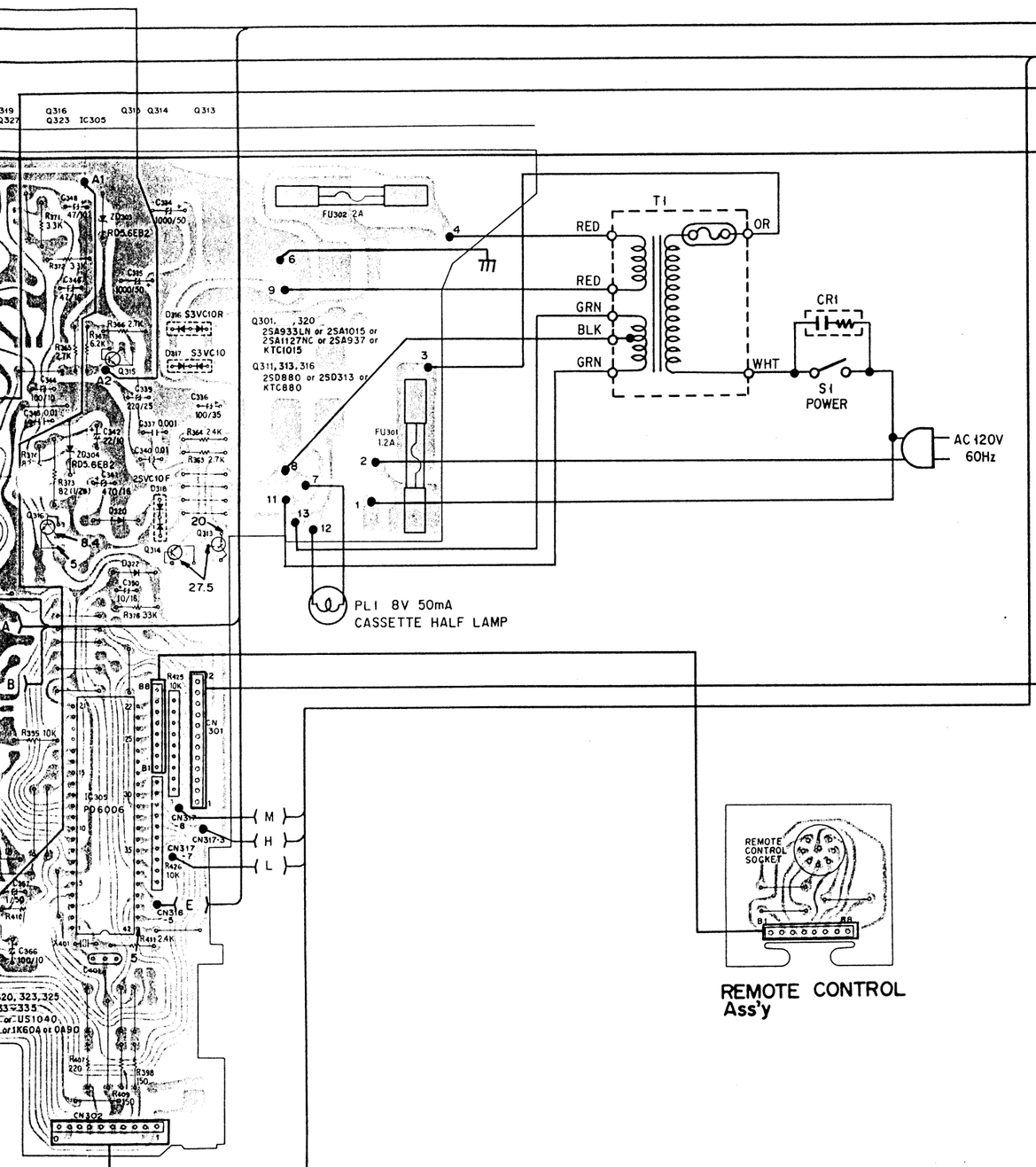
7. P.C. BOARDS CONNECTION DIAGRAM



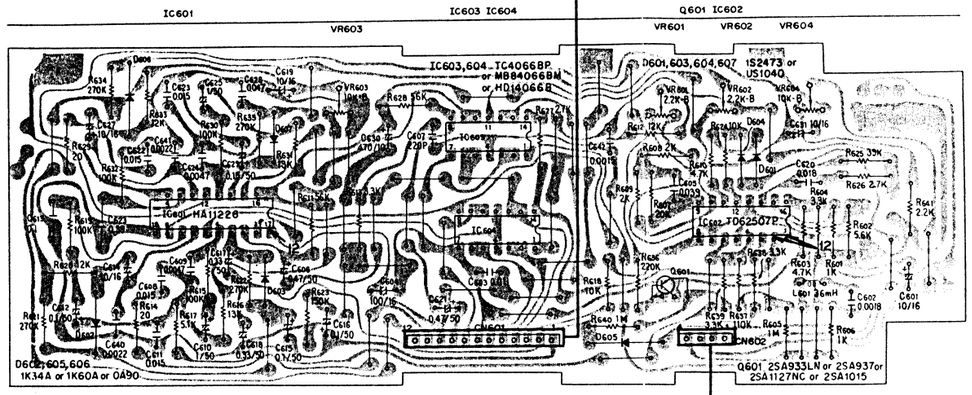
JACK Ass'y RWX-498

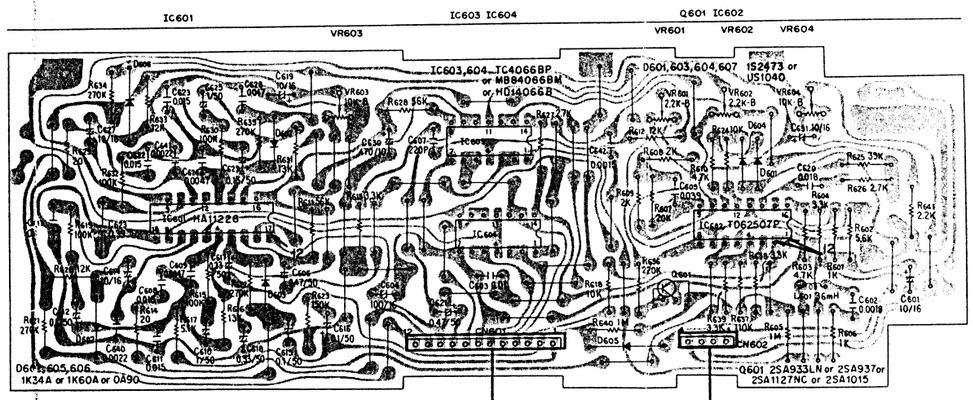






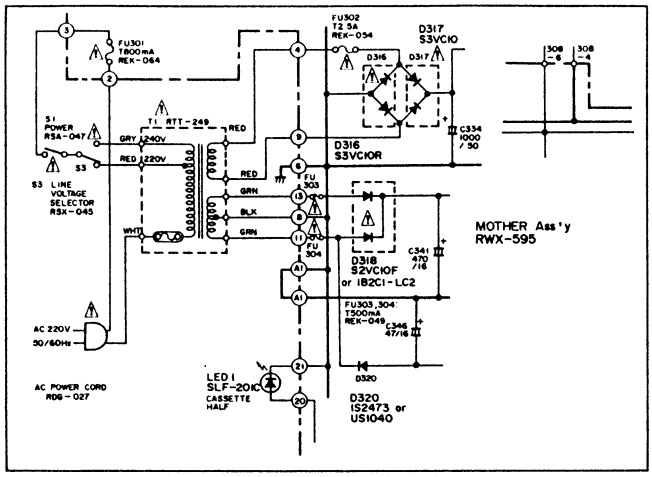
DOLBY Ass'y(L) RWX-499



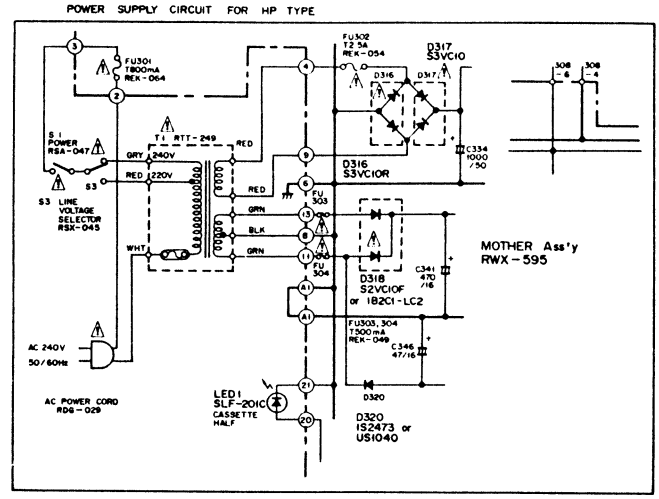


DOLBY Ass'y(R) RWX-499

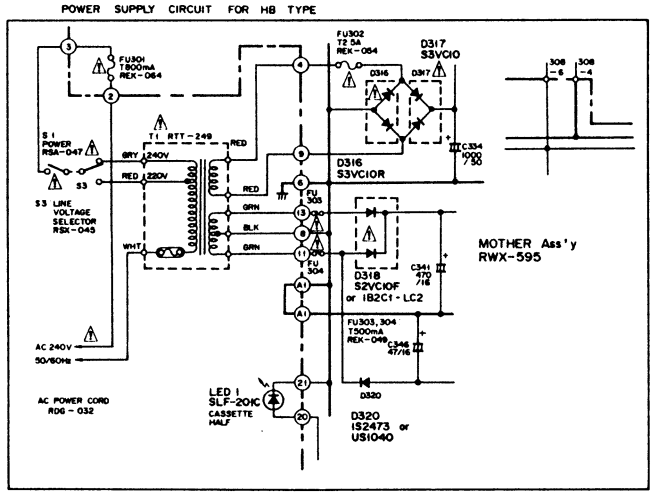
POWER SUPPLY CIRCUIT FOR HE TYPE



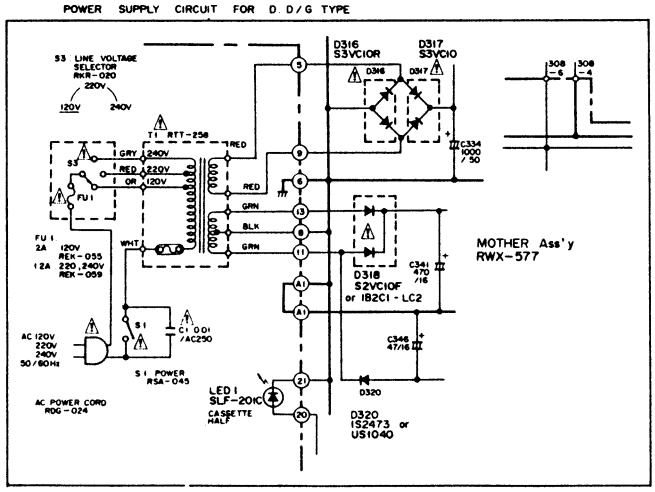
POWER SUPPLY CIRCUIT FOR HP TYPE



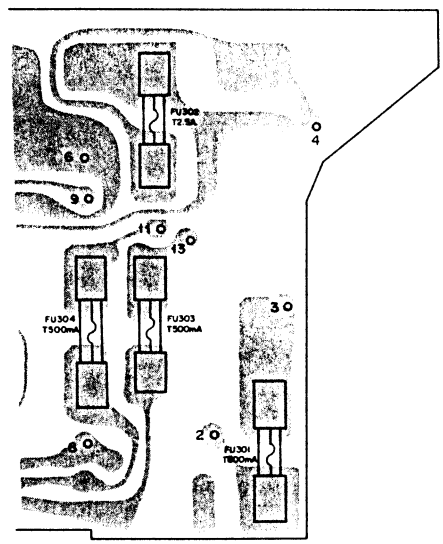
POWER SUPPLY CIRCUIT FOR HB TYPE



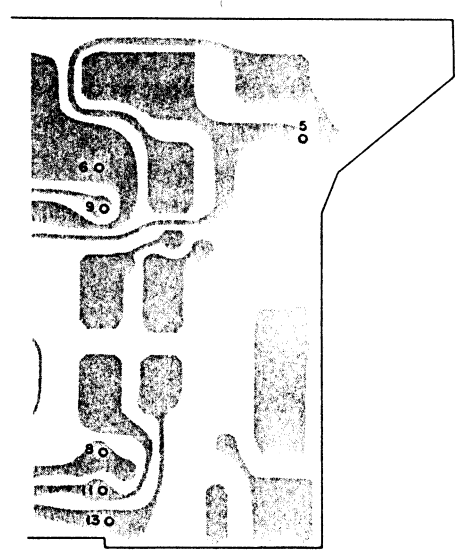
POWER SUPPLY CIRCUIT FOR D D/G TYPE



For HE, HB and HP models (Mother Ass'y)



For D and D/G models (Mother Ass'y)



12.1.4 Fast forward and rewind rotational speed adjustment

1. Connect a frequency counter between the FG and GND terminals on the reel motor control ass'y (see Fig. 12-5).
2. Set to forward direction, and switch to fast forward mode.
3. Adjust the frequency counter reading to 72Hz ±2Hz by means of VR202.
4. Switch to rewind mode, and check that the frequency counter reading lies in the 72Hz ±5Hz range.

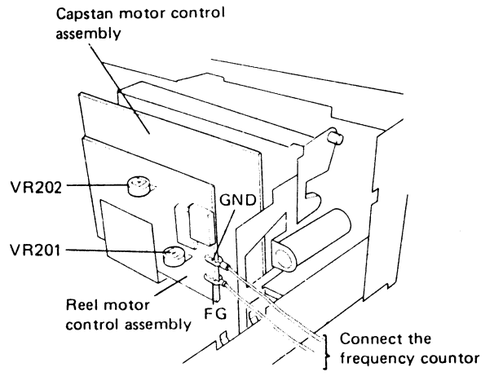


Fig. 12-5 FF/REW Rotating speed adjustment

12.1.5 Playback mode winding torque adjustment

1. Set to forward direction, mount a cassette-type torque meter, and switch to playback mode.
2. Adjust the winding torque to 45g.cm ±5g.cm by VR201.
3. Set to reverse direction.
4. Check that the winding torque is 45g.cm ±10g. cm.

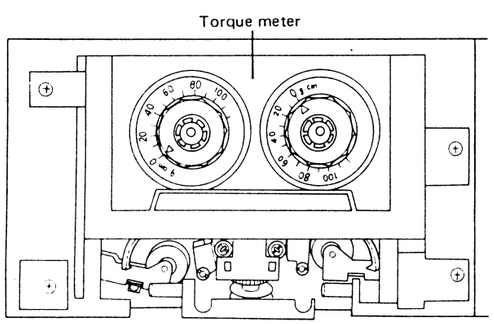


Fig. 12-6 Take-up torque adjustment

12.1.6 Tape speed adjustment

1. Connect the frequency counter to the OUTPUT terminals.
2. Set to forward direction, load a STD-301 test tape wound to the start of the tape, and switch to playback mode.
3. Adjust the frequency counter reading to 3005Hz ±20Hz by VR101.
4. Set to reverse direction, wind the test tape to the start of the tape, and switch to playback mode.
5. Check that the frequency counter reading lies within the 3005Hz ±20Hz range.

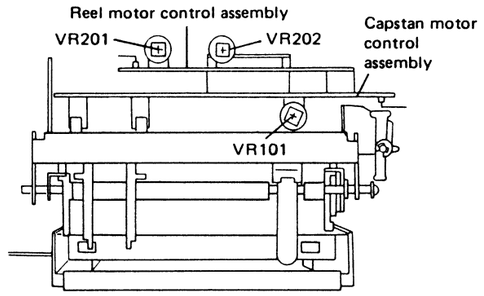


Fig. 12-7 Tape speed adjustment

12.1.7 Fast travel torque check

1. Set to forward direction, mount a cassette-type torque meter, and switch to fast forward mode.
2. Check that the fast forward torque is within the 100g.cm ±30g.cm range.
3. Switch the mode to rewind, and again check that the rewind torque lies within the 100g.cm ±30g.cm range.

12.1.8 Back-tension torque check

1. Set to forward direction, mount a cassette-type torque meter, and switch to playback mode.
2. Check that the supply reel back-tension lies within the 3.5g.cm ±1.5g.cm range.
3. Reverse the direction.
4. Check that the supply reel back-tension again lies within the 3.5g.cm ±1.5g.cm range.

CT-6R/KU,KC,HE,HB,HP,D,D/G

12. ADJUSTMENTS

12.1 MECHANICAL ADJUSTMENTS

12.1.1 Pinch roller pressure adjustment

1. Set to forward direction, and switch to playback mode without loading a cassette half.
2. Using a tension gauge as shown in Fig. 12-1, gently press against the pinch roller arm. The tension gauge reading should lie between 250g and 400g at the moment that the pinch roller is separated from the capstan, and the capstan stops rotating.
3. If the reading lies outside the above range, replace the pinch roller pressure spring.
4. Set to reverse direction and measure the pinch roller pressure for the pinch roller on the other side in the same way as described above.

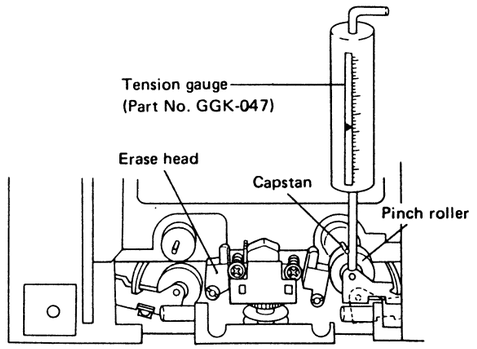


Fig. 12-1 Pinch roller pressure adjustment

12.1.2 Preliminary azimuth adjustment

1. Set to forward direction, and switch to stop mode.
2. Using a screwdriver as shown in Fig. 12-2, adjust gap A between the housing and the revolving base to 1.5mm by turning screw ❶ .
3. Set to reverse direction.
4. Using the screwdriver again, adjust gap B between the housing and the revolving base to 1.5mm by turning screw ❷ .

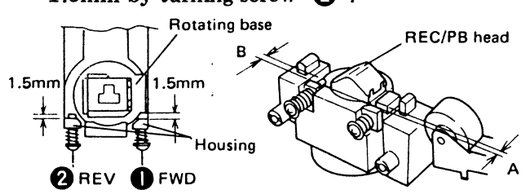


Fig. 12-2 Azimuth adjustment point

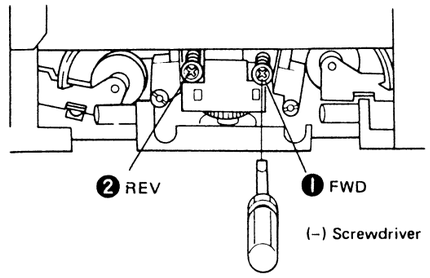


Fig. 12-3 Azimuth preadjustment

12.1.3 Tape travel adjustment

1. Set to forward direction, load a mirror-equipped cassette, and switch to playback mode.
2. Adjust nut ❶ to ensure that no tape curling occurs in the guide section of the recording and erase heads as shown in Fig. 12-4.
3. Set to reverse direction.
4. Adjust nut ❷ to ensure that no tape curling occurs in the guide section of the recording and dummy heads.
5. Check that there is no tape curling during repeated forward and reverse tape travel.

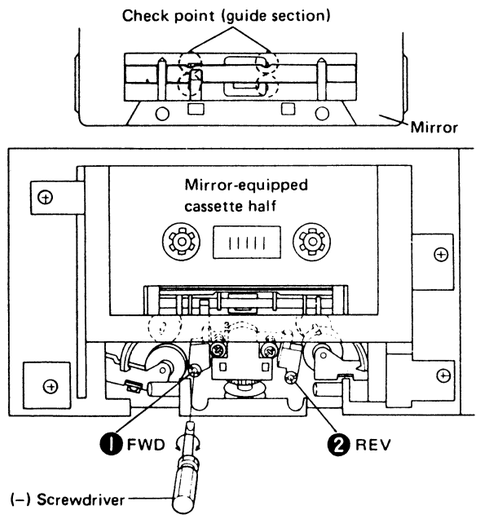


Fig. 12-4 Tape travel adjustment

12. RÉGLAGE

12.1 RÉGLAGES MÉCANIQUES

12.1.1 Réglage de la pression du rouleau de serrage

1. Faire marcher le magnétophone en direction avant et commuter le mode de lecture sans insérer de cassette.
2. Pousser doucement contre le bras du rouleau de serrage avec un étalon de tension comme indiqué Fig. 12-1. La lecture doit se situer entre 250 et 400gr. au moment où le rouleau de serrage est séparé du cabestan, et où le cabestan se arrêter à tourner.
3. Si la lecture se situe hors de ces limites, remplacer le ressort de serrage.
4. Faire marcher en direction opposée et mesurer la pression du rouleau de serrage de l'autre côté de la même manière que précedemment.

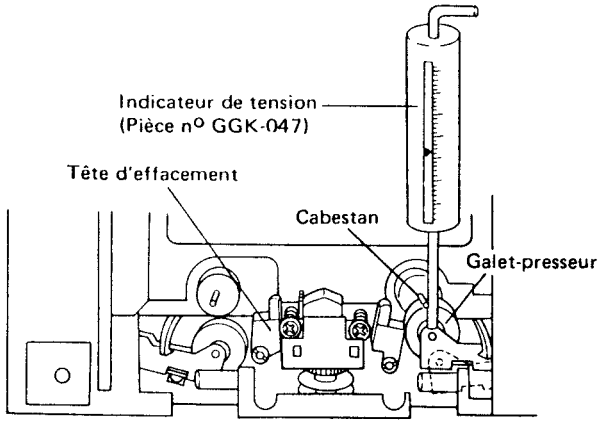


Fig. 12-1 Réglage de la pression du rouleau de serrage

12.1.2 Réglage préliminaire d'azimuth

1. Mettre en marche le magnétophone vers l'avant, en mode d'arrêt.
2. Au moyen d'un tournevis, comme il est montré Fig. 12-2 régler l'intervalle A à 1,5mm. entre le logement et la base tournante, en tournant la vis ❶ .
3. Faire marcher en direction inverse.
4. Au moyen du même tournevis, régler l'intervalle B à 1,5mm entre le logement et la base tournante, en tournant la vis ❷ .

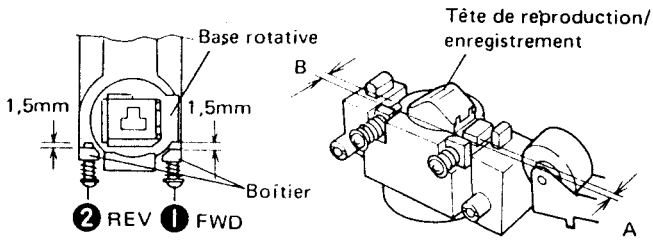


Fig. 12-2 Réglage préliminaire d'azimuth

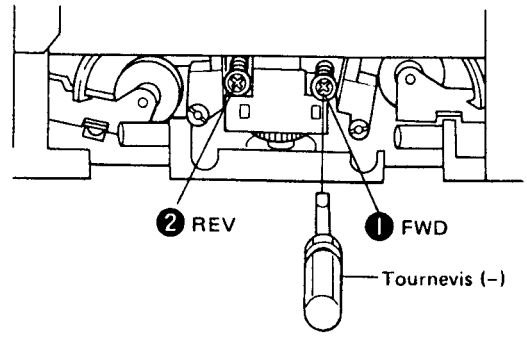


Fig. 12-3 Préréglage d'azimuth

12.1.3 Réglage du défilement de bande

1. Faire marcher en direction avant et insérer une cassette munie d'un mirroir, puis commuter en mode de lecture.
2. Régler l'écrou ❶ pour assurer qu'entre les guides et les têtes d'enregistrement et d'effacement, la bande ne se gondole pas. Voir Fig. 12-4.
3. Faire marcher en direction opposée.
4. Régler l'écrou ❷ pour assurer qu'entre les guides et la tête d'enregistrement et la tête factice, la bande ne se gondole pas.
5. Vérifier qu'il n'y a pas de gauchissement de la bande en répétant plusieure fois le défilement dans les deux sens.

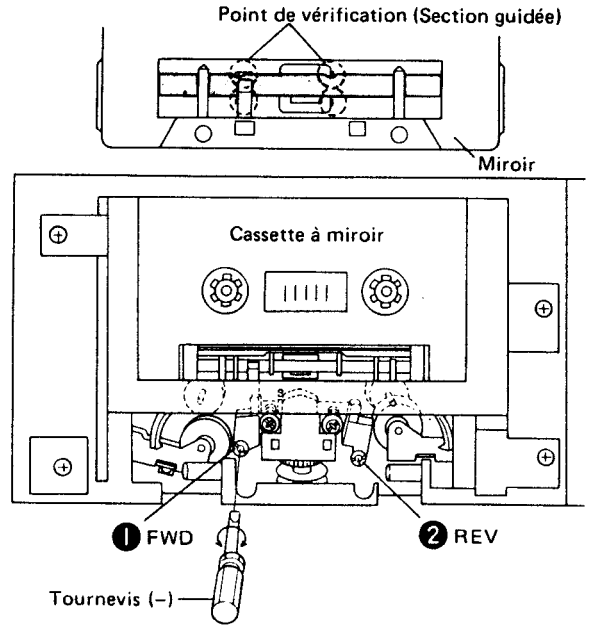
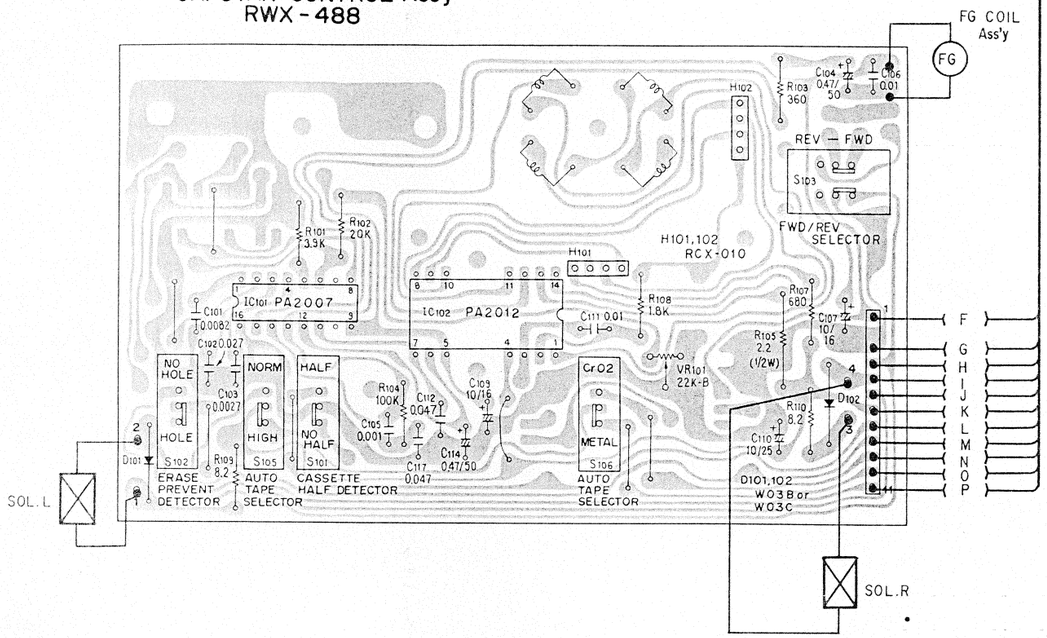
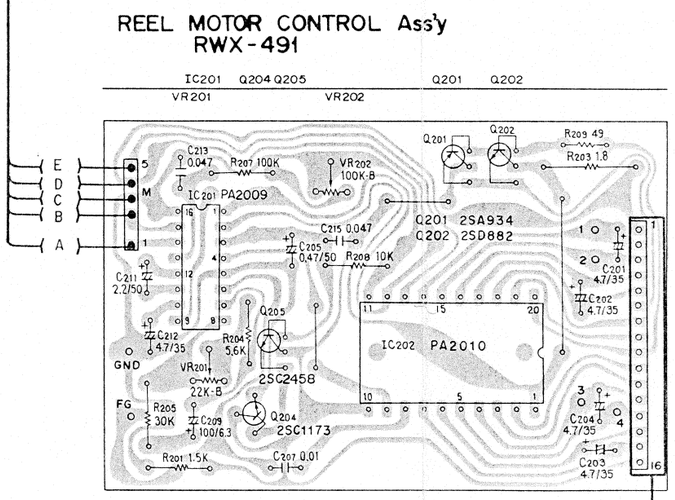


Fig. 12-4 Réglage du défilement de bande

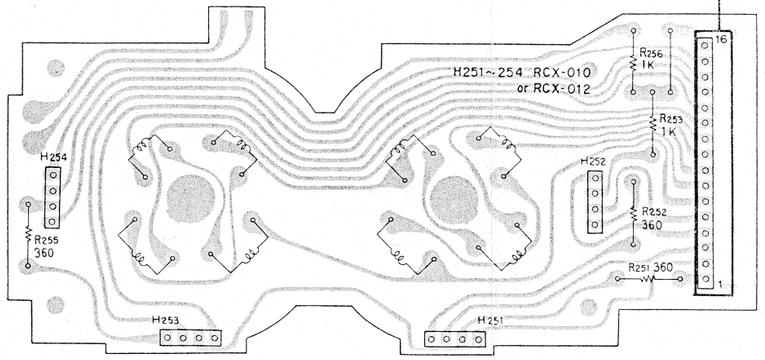
CAPSTAN CONTROL Ass'y RWX-488



REEL MOTOR CONTROL Ass'y RWX-491



REEL MOTOR DRIVE Ass'y



Mechanism viewed from the top

1. As assist gear L rotates, its cam drives the G point of the cam follower lever in an upward direction.
2. As the E point is driven upwards, point F on the right-hand side of the cam follower lever starts forcing the switching plate to the left.
3. As the switching plate is forced to the left, it carries the G point on the coupling plate to the left with it.

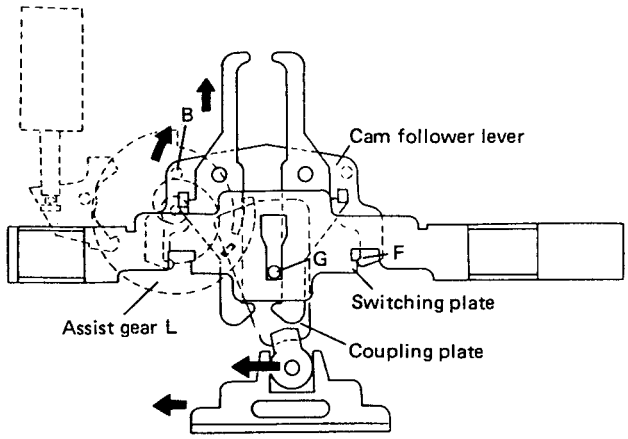


Fig. 1-20 DIRECTION operation 4

4. Since the H point on the coupling plate functions as a support point, as the G point is shifted to the left, the slide plate also moves to the left with the two plates above. This is shown in Fig. 1-21.

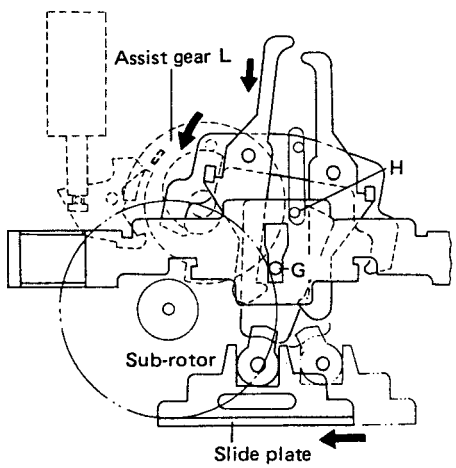


Fig. 1-21 DIRECTION operation 5

5. As the slide plate moves from right to left, the head rotates to the REV direction attitude. (Refer to Fig. 1-23)
6. After assist gear L has turned through about 3/4ths of a revolution, it disengages from the sub-rotor. Spring pressure forces it back to its original state, completing the direction operation, and switching the unit from REV to STOP.

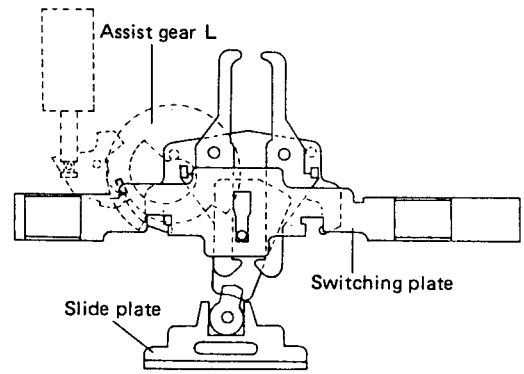


Fig. 1-22 DIRECTION operation 5

4. Head Rotation

As the slide plate moves from right to left in the direction operation (described above), the pin on the sector gear also is forced from right to left. This is shown in Fig. 1-23. As the sector gear pin goes past the center point, the force of the gear spring rotates the sector gear through approximately a 90° angle. This causes the head meshed to sector gear to rotate 180°, placing the unit in a REV state.

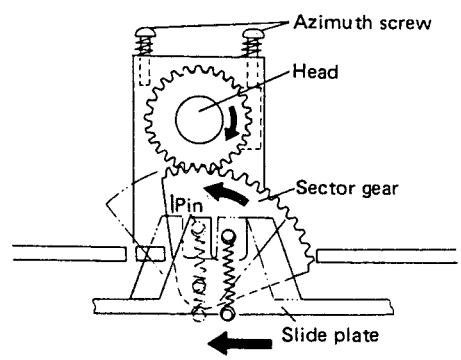


Fig. 1-23 Head rotation operation 1

Direction switch ON

1. Instantaneous transit from FWD-PLAY to FWD-STOP.
2. Approx. 500msec after FWD-STOP entered, dirction operation effects REV-STOP.
3. Approx. 425msec after REV-STOP entered, REV-PAUSE entered.
4. Approx. 325msec after REV-PAUSE entered, REV-PLAY entered, thereby concluding the switching operation.

The above operational flow is also shown using interconnecting arrows in Fig. 1-3. This figure additionally shows other mechanism states possible with the various modes.

Next, the mechanism operation when switching between the various states (in the FWD direction) will be described.

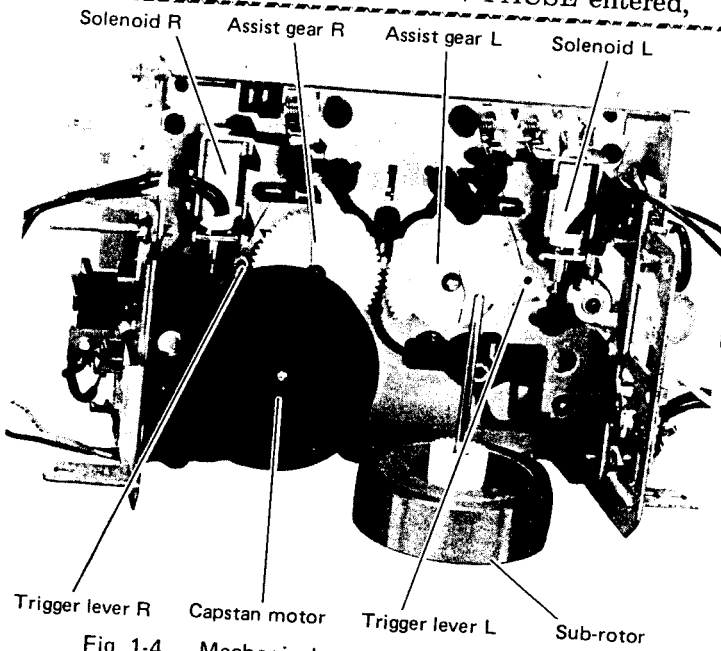


Fig. 1-4 Mechanical construction (Rear view)

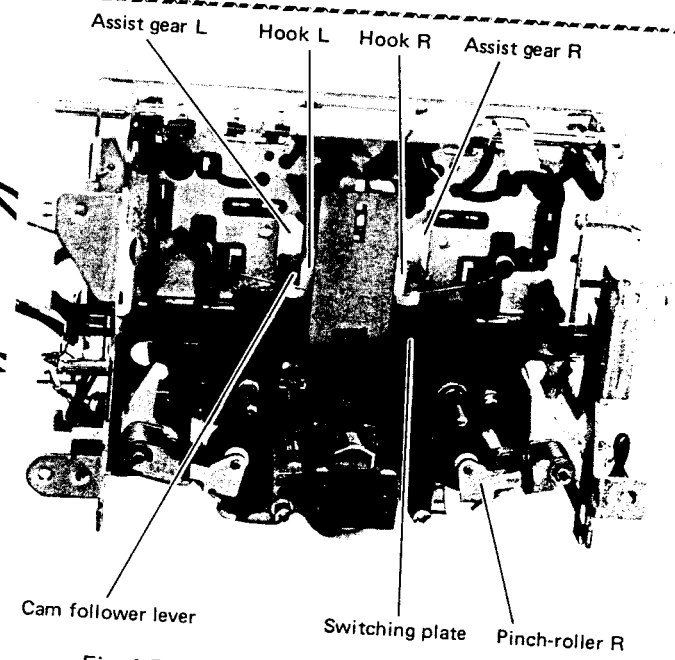


Fig. 1-5 Mechanical construction (Front view)

1. Mechanism Transition from STOP to PAUSE

Mechanism viewed from underneath

1. Upon command transmission from PD6006, solenoid R turns ON (plunger retracted). (Fig. 1-6).)
2. The movement of the solenoid plunger causes the trigger lever R to disengage from the stopper, allowing the assist gear R to turn.
3. Rotation of assist gear R is meshed with the capstan motor.

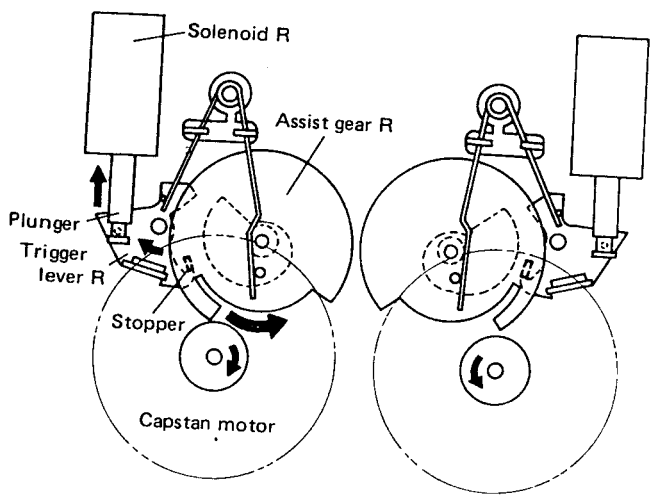


Fig. 1-6 STOP-PAUSE operation 1

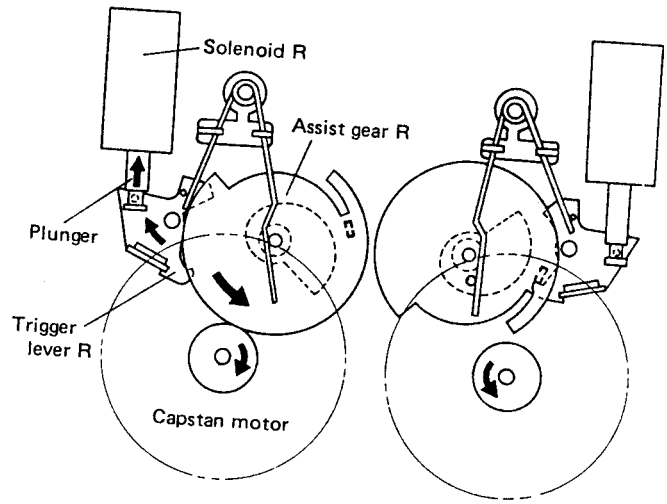


Fig. 1-7 STOP-PAUSE operation 2

4. After assist gear R has turned through about 3/4ths of a revolution, it disengages from the capstan motor.
5. Since solenoid R is in an ON state, the stopper on assist gear R contacts trigger lever R at point A, and stops. The above series of operations covers the events occurring on the backside of the mechanism. Next, the operations occurring simultaneous to the above, but as viewed from the top of the unit will be given.

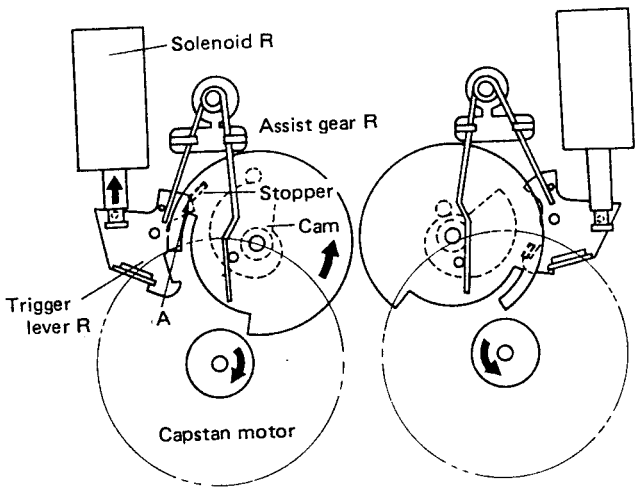


Fig. 1-8 STOP-PAUSE operation 3

Mechanism viewed from the top

1. As assist gear R rotates, its cam drives the B point of the cam follower lever in an upward direction.

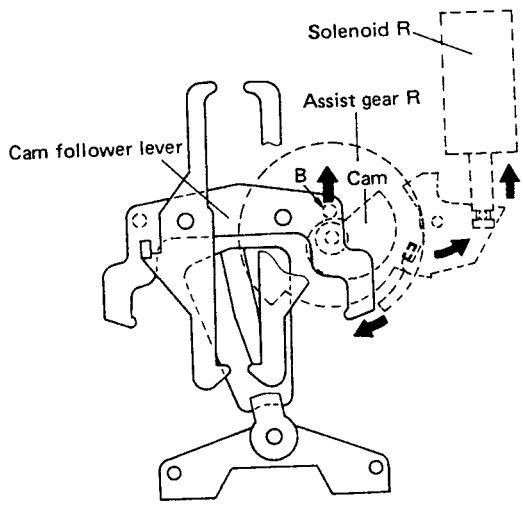


Fig. 1-9 STOP-PAUSE operation 4

2. As the B point is raised, hook R (coupled to B point) is also raised.
3. At point C, hook R catches the coupling plate and continues to rise, carrying the coupling plate and pinch-roller drive-plate with it.
4. The pinch-roller drive-plate continues to rise until the pinch-roller goes into a PAUSE status, then stops.

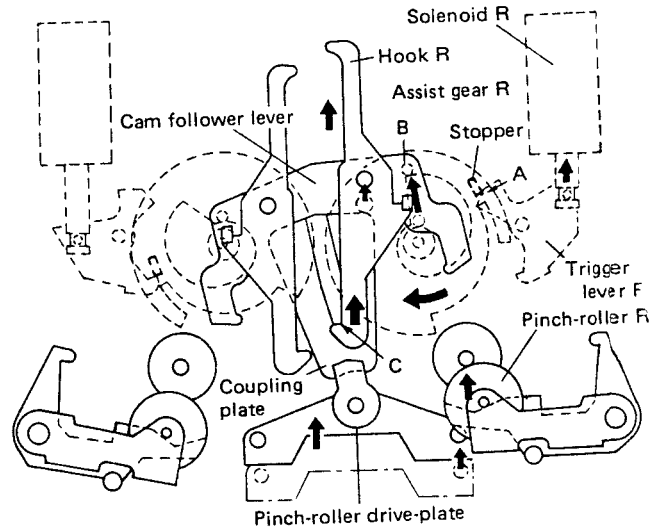


Fig. 1-10 STOP-PAUSE operation 5

2. Mechanism Transition from PAUSE to PLAY

Mechanism viewed from underneath

Solenoid R is presently ON, and the mechanism is in a PAUSE state.

1. Upon command transmission from PD6006, solenoid L turns ON (plunger retracted).
2. The movement of the solenoid plunger causes the trigger lever L to disengage from the stopper, allowing assist gear L to start turning.

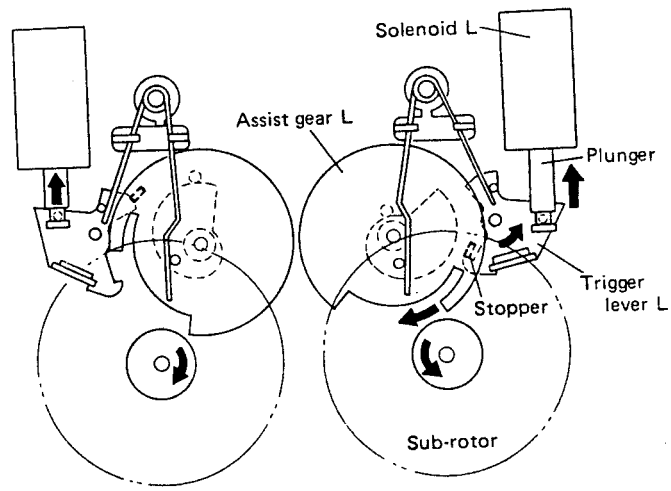


Fig. 1-11 PAUSE-PLAY operation 1

3. Rotation of assist gear L is meshed with the sub-rotor.

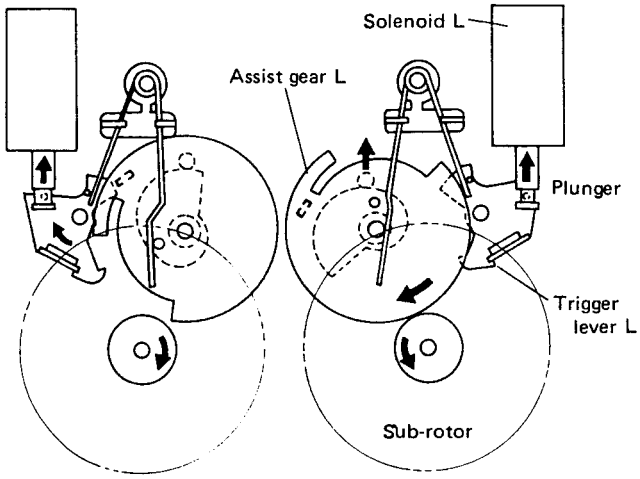


Fig. 1-12 PAUSE-PLAY operation 2

4. After assist gear L has turned through about 3/4ths of a revolution, it disengages from the sub-rotor.
5. Since solenoid L is in an ON state, the stopper on assist gear L contacts trigger lever L at point D, and stops.

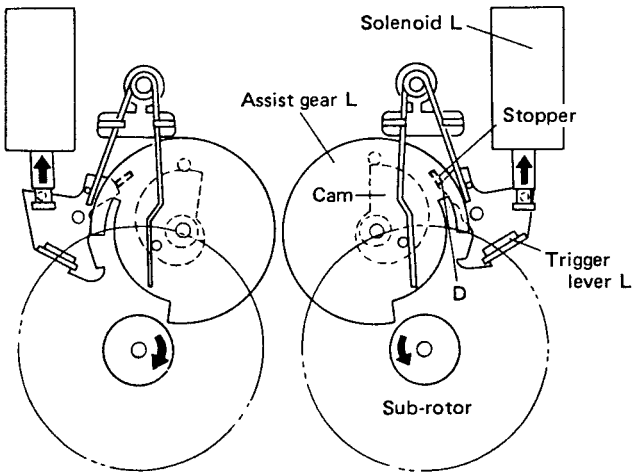


Fig. 1-13 PAUSE-PLAY operation 3

Mechanism viewed from the top

1. As assist gear L rotates, its cam drives the E point of the cam follower lever in an upward direction.
2. As the E point is raised, hook L (coupled to E point) is also raised.

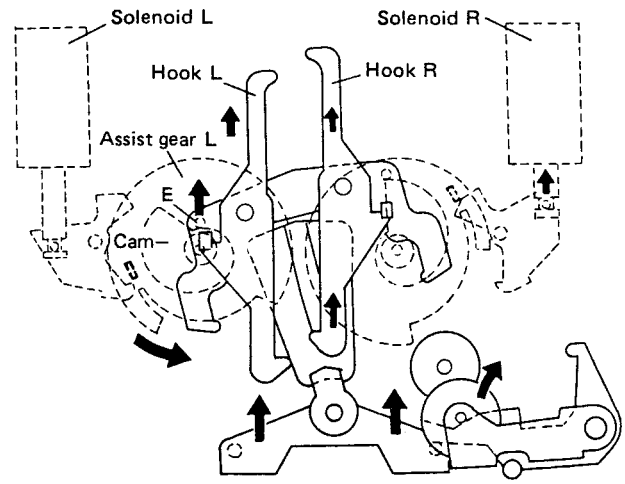


Fig. 1-14 PAUSE-PLAY operation 4

3. When point E reaches the same height as point B, it stops. The head and pinch-roller at this point is shown in Fig. 1-15. Here, since the E point has reached the same height as the B point, the X point rises higher than that of the PAUSE status. Consequently, the head makes contact with the tape, and the tape is pinched between pinch-roller R and the capstan shaft, completing PLAY mode entry.

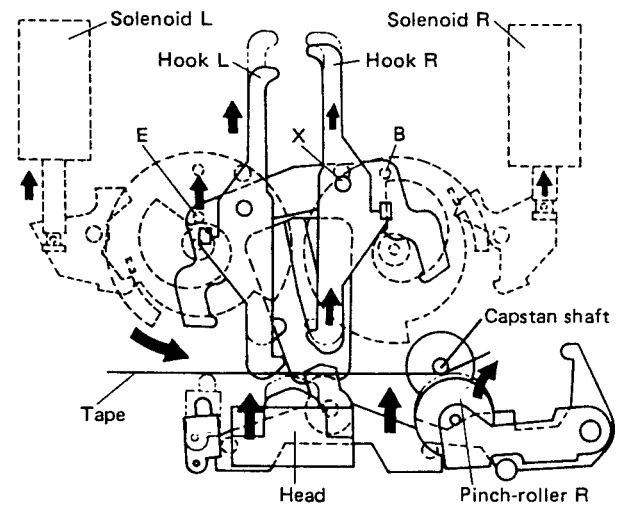


Fig. 1-15 PAUSE-PLAY operation 5

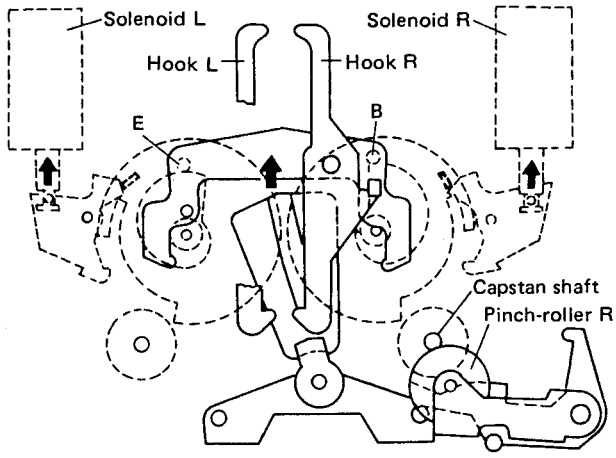


Fig. 1-16 PAUSE-PLAY operation 6

3. Direction Operation

Mechanism viewed from underneath

Mechanism is presently in STOP status

1. Upon command transmission from PD6006, solenoid L turns ON (plunger retracted).
2. The movement of the solenoid plunger causes the trigger lever L to disengage from the stopper, allowing assist gear L to start turning.

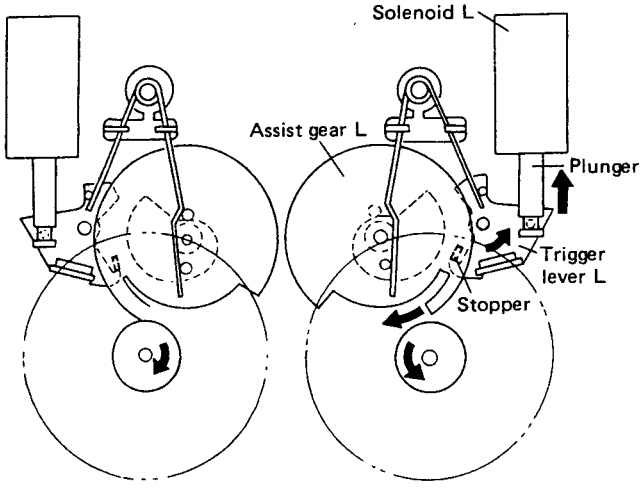


Fig. 1-17 DIRECTION operation 1

3. Solenoid L then goes OFF, returning trigger lever L to it's original position.
4. Rotation of assist gear L is meshed with the sub-rotor.

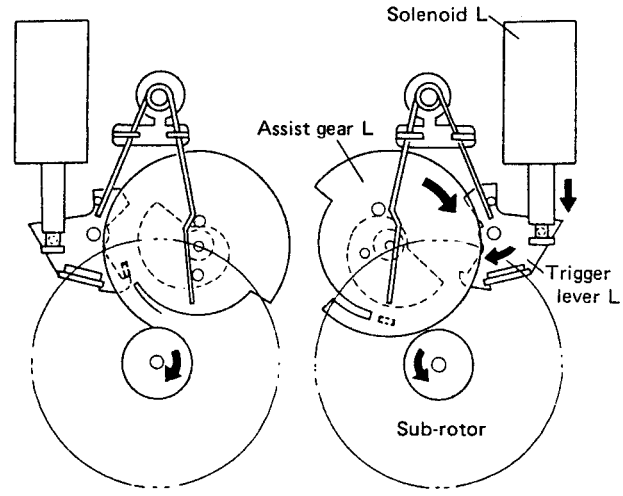


Fig. 1-18 DIRECTION operation 2

5. After assist gear L has turned through about 3/4ths of a revolution, it disengages from the sub-rotor.
6. When the sub-rotor and assist gear L become unmeshed, since the solenoid lever has already returned to its out position, spring tension is allowed to return the assist gear to its original position after making only one revolution. This completes the operation.

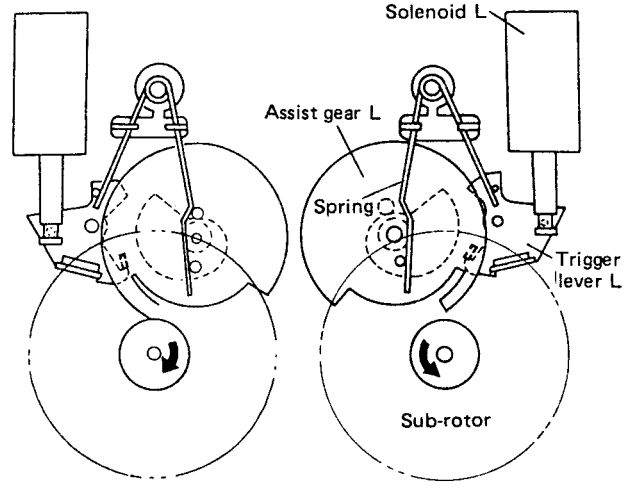


Fig. 1-19 DIRECTION operation 3

ADDITIONAL

Service Manual

PIONEER®

ORDER NO.
ARP-220-0

STEREO CASSETTE TAPE DECK

CT-7R
CT-6R

- In CT-7R, a one-chip IC (PA3012) is incorporated in the Dolby NR circuit with the following Serial No.
  For mechanical adjustments, please see the service manuals ART-667-0 and ARP-095.
- Ce manuel d'instruction se refère au mode de réglage, en fançais.
- Este manual de servicio trata del método de ajuste escrito en español.

Type	Serial No.	
KU	3635101	~
KC	3401101	~
HE	8405701	~
HB	8500501	~
HP	8600201	~
D	9303301	~
D/G	9304201	~

- In CT-6R, a one-chip IC (PA3012) is incorporated in the Dolby NR circuit with the following Serial No.
  For mechanical adjustments, please see the service manuals ART-671-0 and ARP-094.
- Ce manuel d'instruction se refère au mode de réglage, en fançais.
- Este manual de servicio trata del método de ajuste escrito en español.

Type	Serial No.	
KU	3655401	~
KC	3402601	~
HE	8411501	~
HB	8501801	~
HP	8600401	~
D	9303201	~
D/G	9302501	~

HI 012b

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS [USA] INC. 1925 E. Dominguez St., Long Beach, California 90810 U.S.A.
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia

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ELECTRICAL ADJUSTMENTS

Precaution

1. Mechanical adjustment should be completed.
2. Clean the following parts with an alcohol moistened swab; Record/Playback head, Pinch roller, Erase head, Rubber belts and Capstan.
3. Demagnetize record/playback head with a head demagnetizer.
4. Do not use magnetized screwdriver for adjustments.
5. Adjustment and measurements should be performed for both L-ch and R-ch with rated power supply voltage.
6. Adjustments should be performed in the order given in this service manual. Altering the order can hinder proper adjustments, resulting in loss of performance.
7. Level during measurements are based on 0dBv=1V. Connect a 50kΩ dummy resistor across the OUTPUT terminals.
8. Let the unit warm up (aging) for a few minutes before proceeding with the adjustment.
9. Set the DOLBY NR switch OFF unless directed otherwise.

Test Equipment/Tools Required;

1. Test tape
   - STD-331A ..... for general playback purpose
   - STD-341A ..... for playback adjustment
   - STD-608A ..... NORMAL blank tape
   - STD-603 ..... CrO_2 blank tape
   - STD-604 ..... METAL blank tape
2. Audio oscillator
3. AC millivoltmeter (AC mV)
4. Attenuator
5. Oscilloscope
6. Resistor 50kΩ (1/4W)

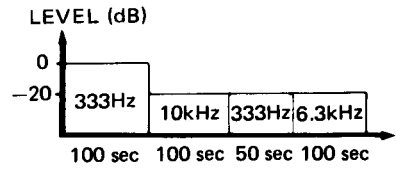


Fig. 1 Contents of the test tape STD-341A

HEAD AZIMUTH ADJUSTMENT

Setting:

Mode ..... Playback (FWD and REV)
Test tape ..... STD-341A, 10kHz portion
AC mV meter ..... OUTPUT terminals
VR501, VR502 ..... Max.

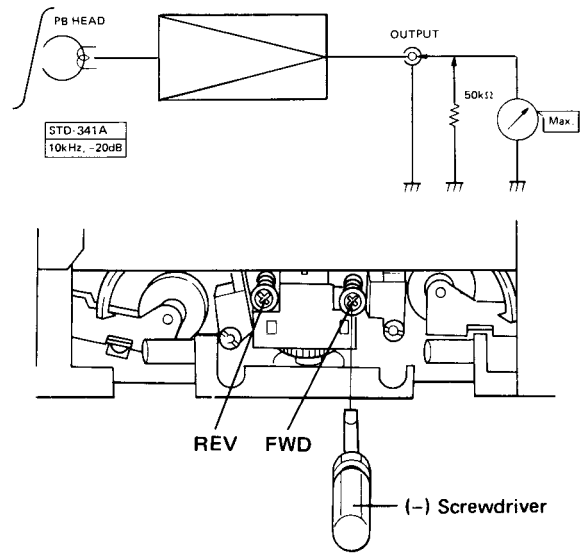


Fig. 2 Azimuth preadjustment

Procedure:

Play a tape in both forward and reverse directions. Adjust the head azimuth screw to the position of maximum output level.

TAPE TRANSPORT ADJUSTMENT

1. Load a mirror-equipped cassette half.
2. Set the DIRECTION switch to FORWARD and then the mode to PLAY.
3. Adjust the adjust nut ❶ so that no curling takes place on REC/PB head guide and erase head guide as shown in Fig. 3.
4. Set the DIRECTION switch to REVERSE.
5. Adjust the adjust nut ❷ so that no curling occurs on REC/PB head guide and erase head guide.
6. Play a tape in both FORWARD and REVERSE directions and check that no curling on tape is found.

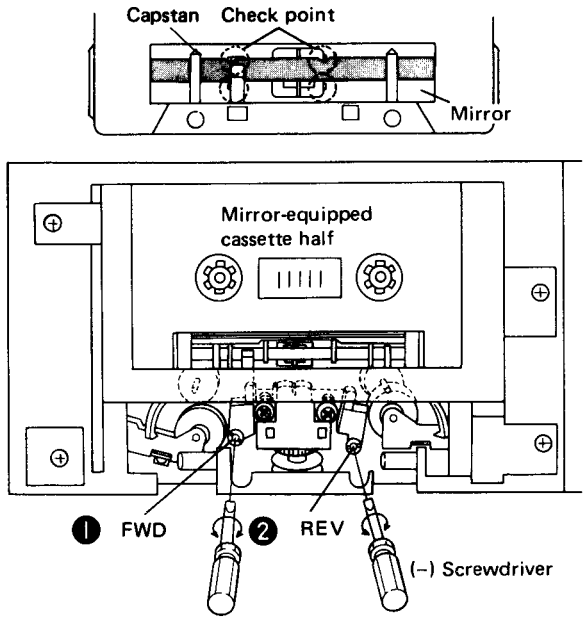


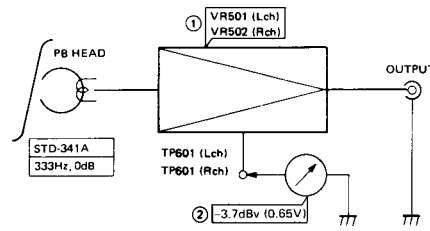
Fig. 3 Tape transport adjustment

PLAYBACK LEVEL ADJUSTMENT

Since this adjustment determines the DOLBY NR level during playback, it should be performed precisely.

Setting:

Mode ..... Playback (FWD)
Test tape ..... STD-341A, 333Hz 0dB portion
AC mV meter ..... TP601 of the DOLBY NR assembly L
TP601 of the DOLBY NR assembly R



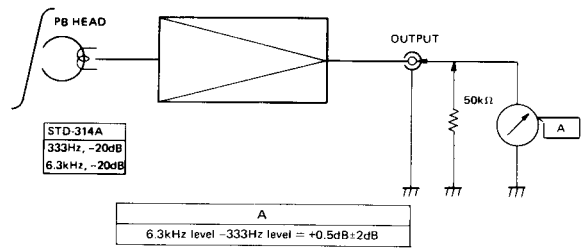
Procedure:

Adjust the VR501 (Lch) and VR502 (Rch) of the AMP assembly so that the AC mV meter reads - 3.7dBv (0.65V).

PLAYBACK EQUALIZER CHECK

Setting:

Mode ..... Playback (FWD and REV)
Test tape ..... STD-341A, 333Hz and 6.3kHz portions
AC mV meter ..... OUTPUT terminals



Procedure:

Play the 333Hz and 6.3kHz portions of the test tape. Check that the difference between the two output levels does not exceed +0.5dB±2dB.

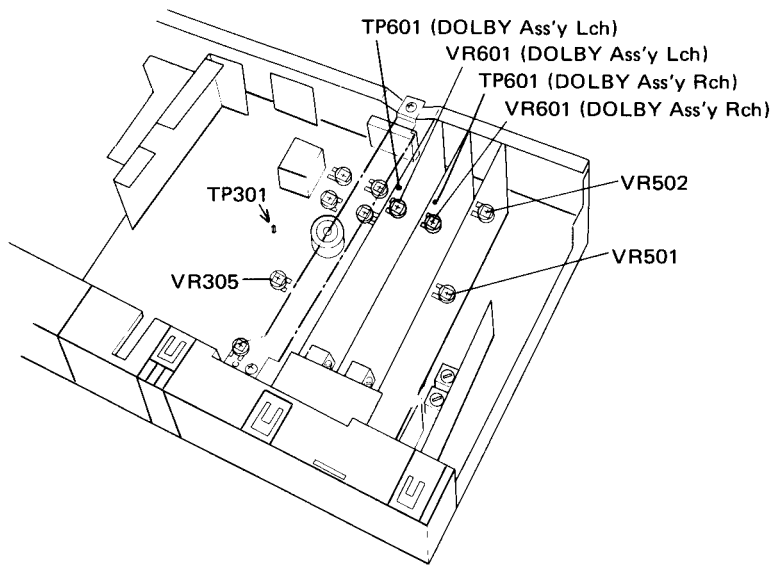


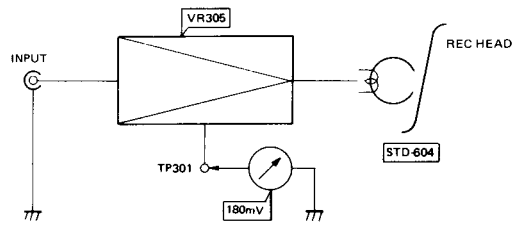
Fig. 4 Adjustment points

ERASURE CURRENT ADJUSTMENT

The adjustment procedure is the same for both the FWD and REV directions, but if there is a difference between the two indications, adjust so that the lower of the two erasure current indications is 180mV $^{+0}_{-40}$ mV.

Setting:

Mode ..... Record
INPUT Level Control ... Min.
AC mV meter ..... TP301 of the Mother assembly
Test tape STD-604



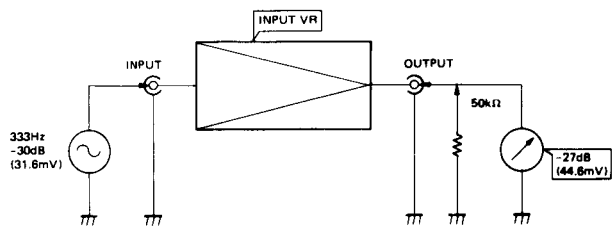
Procedure:

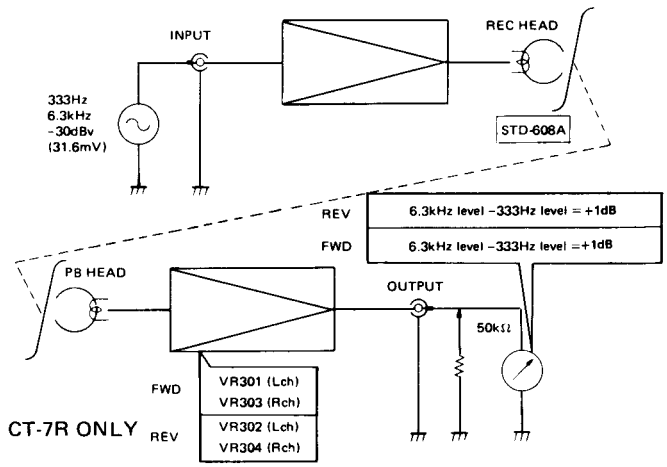
1. Set the unit to the FWD position and adjust the VR305 so that the AC mV meter reads 180mV.
2. Likewise, set the CT-7R to the REV position and confirm that AC mV meter reads 180mV $^{+0}_{-40}$ mV. CT-7R ONLY

RECORDING/PLAYBACK FREQUENCY RESPONSE ADJUSTMENT

Setting:

Mode ..... Record
Record/Playback
Input Signal ..... 333Hz, -30dBv
(from INPUT) (31.6mV)
6.3kHz, -30dBv
(31.6mV)
Test tape STD-608A
AC mV meter ..... OUTPUT terminals





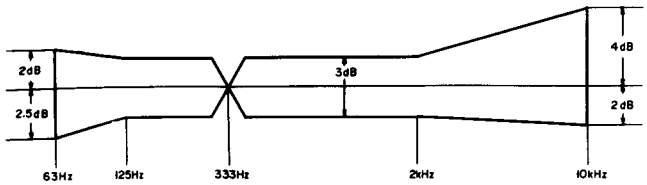
Procedure:

1. Adjust the INPUT level control so that the AC mV meter reads -27dBv (44.6mV).
2. Set the unit to the FWD position and record and play back the input signals (333Hz and 6.3kHz) onto the STD-608A. Adjust the VR301 (Lch) and VR303 (Rch) so that the difference between two is +1dB.
3. Likewise, set the CT-7R to the REV position and record and play back the input signals (333Hz and 6.3kHz) onto the STD-608A. Then adjust the VR302 (Lch) and VR304 (Rch) so that the difference two outputs is +1dB. CT-7R ONLY

* As listed in the specifications in Fig. 5, check to see that performance meets specifications.

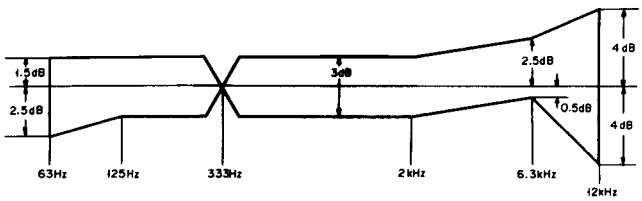
Frequency Response

Using STD-341A with DOLBY NR OFF
However, the right channel is compensated by −1dB at 63Hz, and −0.5dB at 125Hz because of the insulation effect.

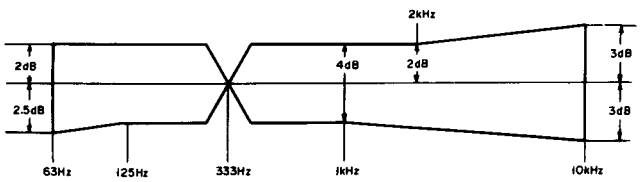


Overall Frequency Response

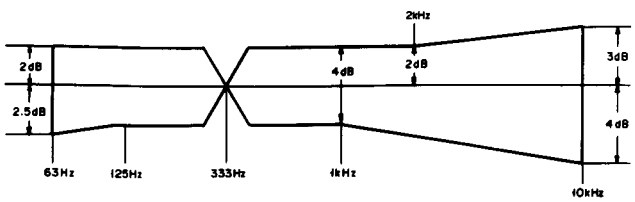
Using STD-608A with DOLBY NR OFF



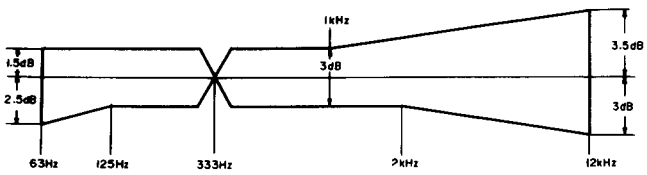
Using STD-608A with DOLBY NR ON (B type)



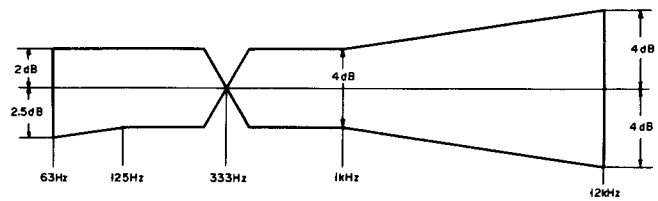
Using STD-608A with DOLBY NR ON (C type)



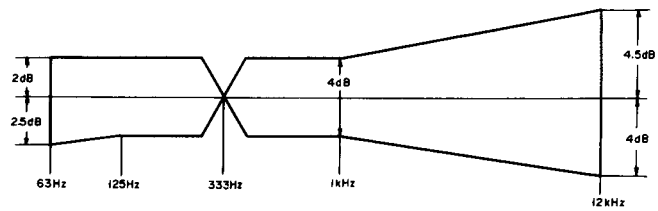
Using STD-603with DOLBY NR OFF



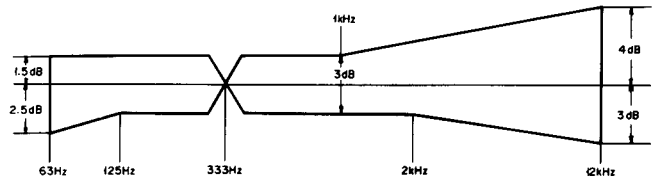
Using STD-603 with DOLBY NR ON (B type)



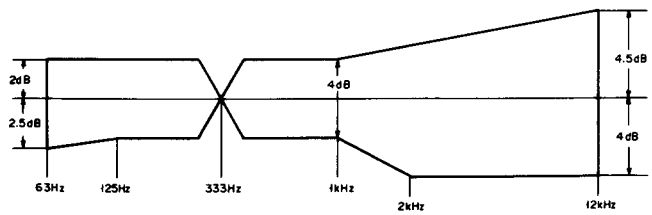
Using STD-603 with DOLBY NR ON (C type)



Using STD-604 with DOLBY NR OFF



Using STD-604 with DOLBY NR ON (B type)



Using STD-604 with DOLBY NR ON (C type)

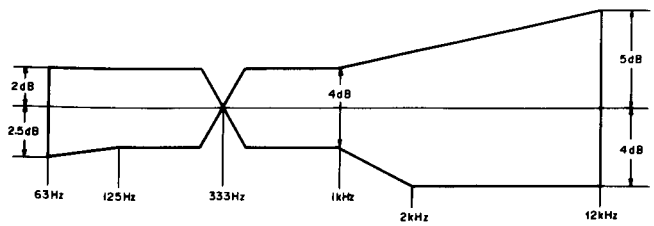
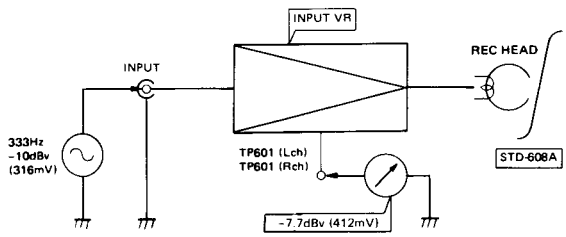


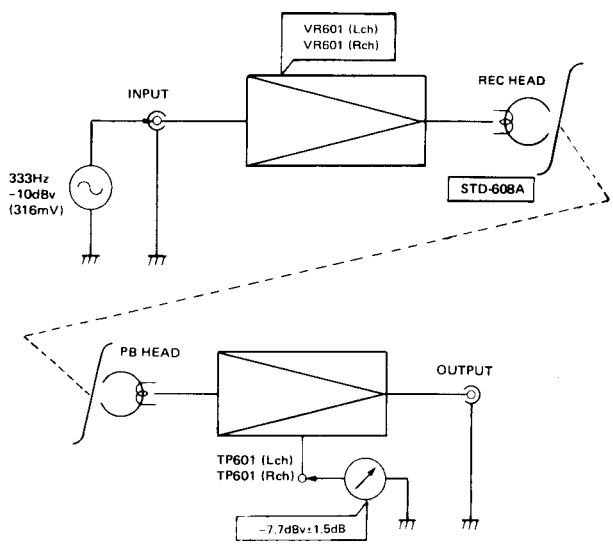
Fig. 5 Frequency response

RECORDING LEVEL ADJUSTMENT

Setting:

Mode	Record Record/Playback
Input Signal (from INPUT)	333Hz, -10dBv (316mV)
Test tape	STD-608A (NORM) STD-603 (CrO_2) STD-604 (METAL)
AC mV meter	TP601 of the DOLBY NR assembly L TP601 of the DOLBY NR assembly R





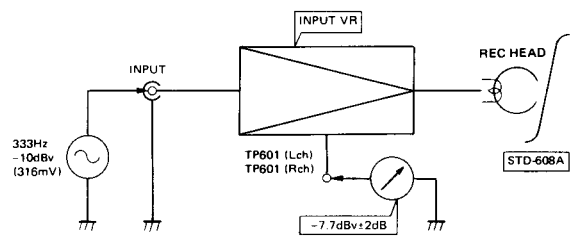
Procedure:

1. Set the test tape STD-608A and adjust the INPUT level control so that the AC mV meter reads -7.7dBv (0.41V).
2. Set the DOLBY NR switch to ON position. Set the unit to the FWD position and record and play back the input signal onto the STD-608A. Adjust the VR601 (Lch) and VR601 (Rch) so that the AC mV meter reads -7.7dBv (0.41V).
3. Set the test tape STD-603 and DOLBY NR switch to the ON position and record and play back the input signal onto the STD-603. Confirm that the AC mV meter reads -7.7dBv ±1.5dB.
4. Set the test tape STD-604 and DOLBY NR switch to the ON position and record and play back the input signal onto the STD-604. Confirm that the AC mV meter reads -7.7dBv ±1.5dB.

LEVEL METER CHECK

Setting:

MODE	Record pause
Input signal (from INPUT)	333Hz, -10dBv (316mV)
AC mV meter	TP601 of the DOLBY NR assembly L TP601 of the DOLBY NR assembly R



Procedure:

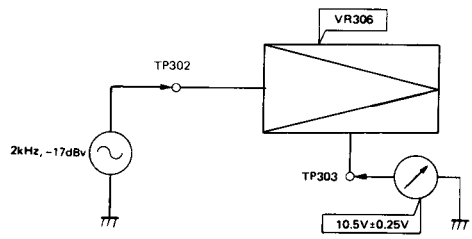
Adjust the INPUT level control so that the level meter reads 0 VU. Then check the AC mV meter reads -7.7dBv±2dB.

LEADER TAPE DETECT ADJUSTMENT (CT-7R ONLY)

Step 1.

Setting:

Mode ..... Stop
Input Signal ..... 2kHz, - 17dBv (0.4V P-P Sin wave) to TP302 of the Mother assembly
DC mV meter ..... TP303 of the Mother assembly



Procedure:

1. Remove the connector CN315 of the Mother assembly.
2. Adjust the VR306 so that the DC mV meter reads 10.5V±0.25V.
3. Return the connector CN315 to the original position.

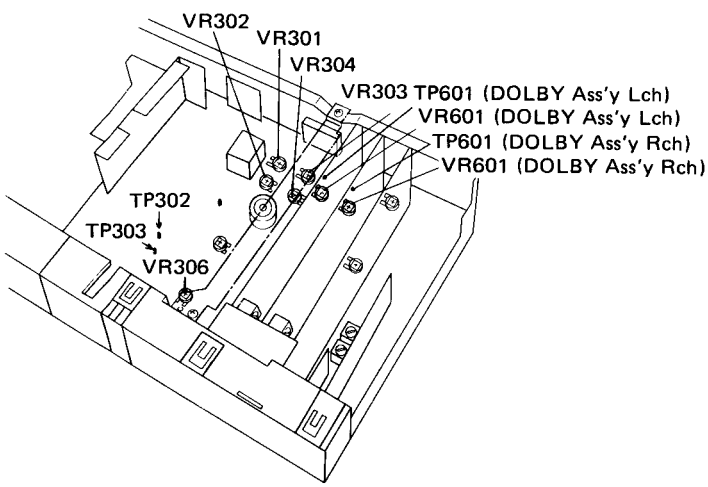
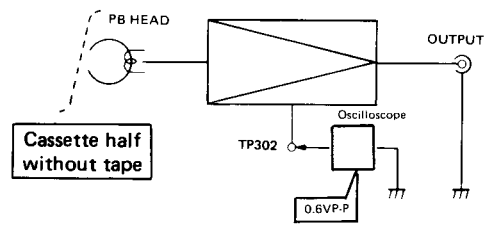


Fig. 6 Adjustment points

Step 2.

Setting:

Mode ..... Playback
Tape ..... Cassette half without tape
Oscilloscope ..... TP302 of the Mother assembly



Procedure:

1. Confirm that the Oscilloscope reads - 10dBv (0.6V P-P square wave).
2. If - 10dBv is exceeded, bridge the section shown in Fig. 7 by soldering.

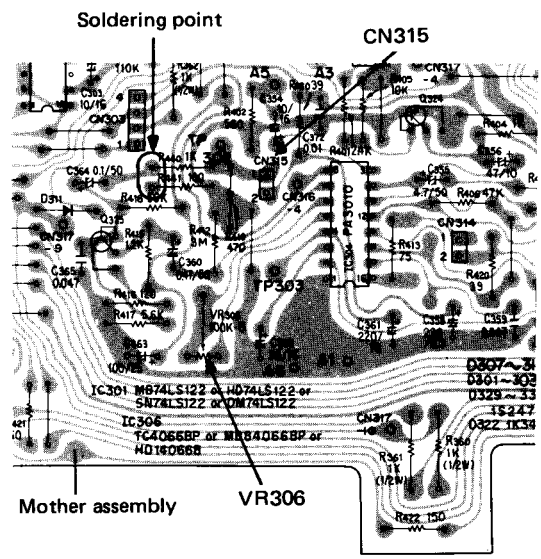


Fig. 7 Soldering point

RÉGLAGES ÉLECTRIQUES

Précautions

1. Les réglages mécaniques doivent être terminés.
2. Nettoyer les pièces suivantes à l'aide d'un bâtonnet imbibé d'alcool: tête d'enregistrement/lecture, galet presseur, tête d'effacement, courroies en caoutchouc et cabestan.
3. Démagnétiser la tête d'enregistrement/lecture à l'aide d'un démagnétiseur de tête.
4. Ne pas utiliser de tournevis magnétisé pour les réglages.
5. Les réglages et les mesures doivent être réalisés pour les canaux de gauche et de droite avec la tension d'alimentation nominale.
6. Les réglages doivent être effectués dans l'ordre indiqué dans ce manuel de service. Une modification de cet ordre peut empêcher la réalisation de réglages corrects et peut provoquer une baisse de performance.
7. Les niveaux en cours de mesure sont basés sur 0dBv = 1V. Raccorder une charge fictive de 50 kΩ entre les bornes de sortie (OUTPUT).
8. Laisser chauffer (vieillissement) le unité pendant quelques minutes avant de procéder aux réglages.
9. Placer le commutateur DOLBY NR sur OFF sauf indication contraire.

Equipements/outils d'essai requis

1. Bande d'essai
   - STD-331A ..... Pour la reproduction générale.
   - STD-341A ..... Pour le réglage de la reproduction
   - STD-608A ..... Bande "NORMAL" vierge
   - STD-603 ..... Bande "CrO_2" vierge
   - STD-604 ..... Bande "METAL" vierge
2. Oscillateur BF
3. Millivoltmètre alternatif (mV CA)
4. Atténuateur
5. Oscilloscope
6. Résistance 50 kΩ (1/4W)

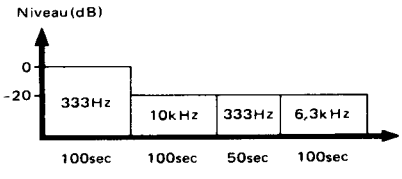


Fig. 1 Contenu de la bande d'essai STD-341A

RÉGLAGE DE L'AZIMUT DE TÊTE

Montage:

Mode ..... Lecture (FWD et REV)
Bande d'essai ..... STD-341A, partie de 10kHz
Millivoltmètre alternatif ..... Bornes de sortie OUTPUT
VR501, VR502 ..... Maximum

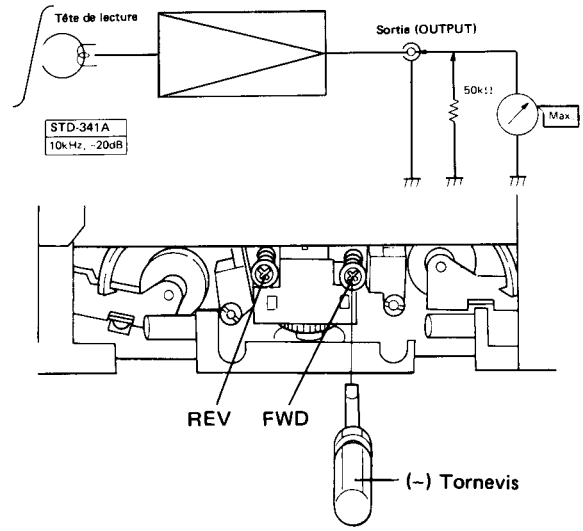


Fig. 2 Préréglage d'azimut

Procédure:

Lire la bande en sens avant et en sens arrière. Régler la vis d'azimut de tête sur la position donnant le niveau de sortie maximum.

RÉGLAGE DE L'ENTRAINEMENT DE LA BANDE

1. Charger une demi-cassette munie d'un miroir.
2. Placer le commutateur de DIRECTION sur la position FORWARD (avant) et le mode sur PLAY (lecture).
3. Régler l'écrou de réglage ❶ de manière à ce qu'aucune ondulation ne se produise sur la pièce de guidage de la tête d'enregistrement/lecture (REC/PB) ni sur le guide de la tête d'effacement, comme indiqué à la Fig. 3.
4. Placer le commutateur de DIRECTION sur la position REVERSE (arrière).
5. Régler l'écrou de réglage ❷ de manière à ce qu'aucune ondulation ne se produise sur le guide de la tête d'enregistrement/lecture (REC/PB) ni sur le guide de la tête d'effacement.
6. Faire défiler une bande en avant (FORWARD) et en arrière (REVERSE) et vérifier qu'aucune ondulation ne se produit.

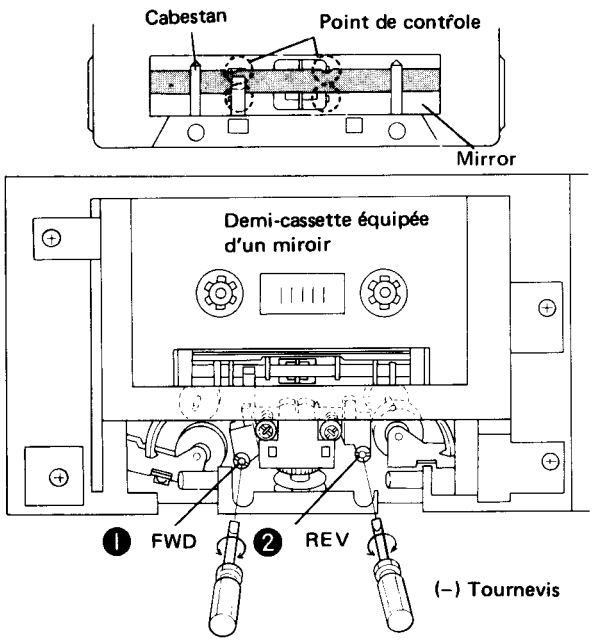


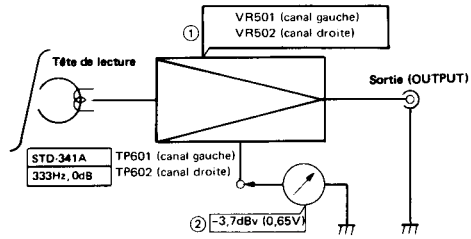
Fig. 3 Réglage de l'entraînement de la bande

RÉGLAGE DU NIVEAU DE LECTURE

Ce réglage doit être effectué avec précision car il détermine le niveau Dolby NR pendant la lecture.

Montage:

Mode ..... Lecture (avant (FWD))
Bande d'essai ..... STD-341A, partie de 333Hz, 0dB
Millivoltmètre alternatif ..... TP601 de l'ensemble Dolby NR de gauche (L)
TP601 de l'ensemble Dolby NR de droite (R)



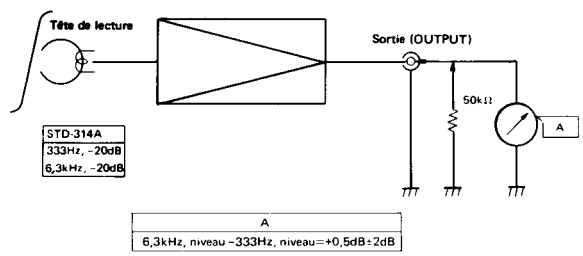
Procédure:

Régler VR501 (canal de gauche) et VR502 (canal de droite) de l'ensemble AMP, de mianière à ce que le millivoltmètre alternatif indique - 3,7dBv (0,65V).

CONTRÔLE DE L'EGALISEUR DE LECTURE

Montage:

Mode ..... Lecture (avant (FWD) et arrière (REV))
Bande d'essai ..... STD-341A, parties de 333Hz et de 6,3kHz
Millivoltmètre alternatif ..... Bornes de sortie (OUTPUT)



Procédure:

Lire les parties 333Hz et 6,3kHz de la bande d'essai. Vérifier que la différence entre les deux niveaux de sortie ne dépasse pas +0,5dB ±2dB.

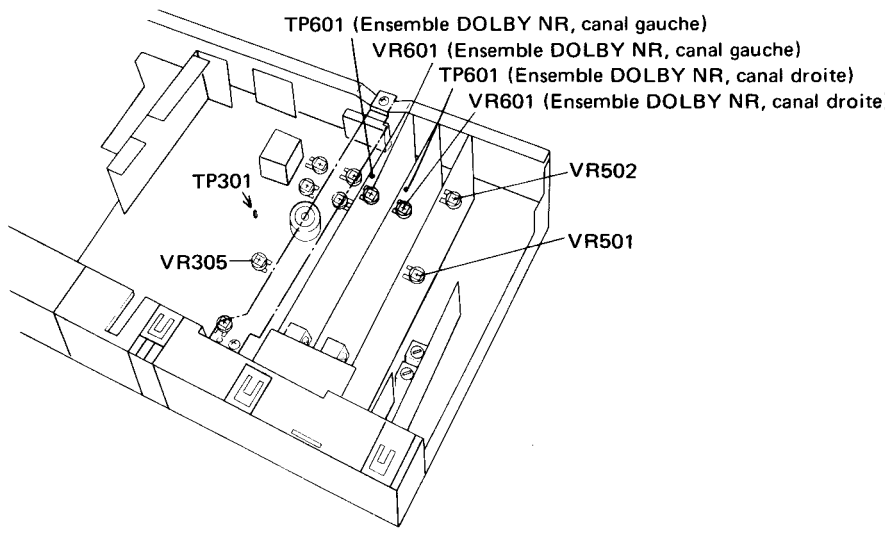
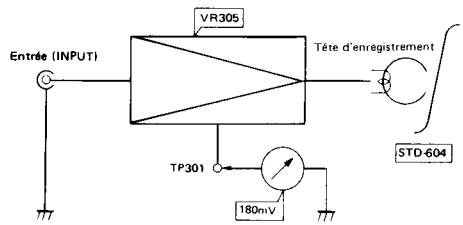


Fig. 4 Points de réglage

RÉGLAGE DU COURANT D'EFFACEMENT

La procédure de réglage est la même dans les deux directions, avant (FWD) et arrière (REV), mais les deux valeurs indiquées sont différentes. Le réglage doit être effectué de manière à ce que le plus faible des deux courants d'effacement soit de 180mV$^{+0}_{-40}$ mV.



Montage:

Mode ..... Enregistrement
Réglage du niveau d'entrée (INPUT) .... Minimum
Millivoltmètre alternatif ..... TP301 de l'ensemble principal
Bande d'essai STD-604

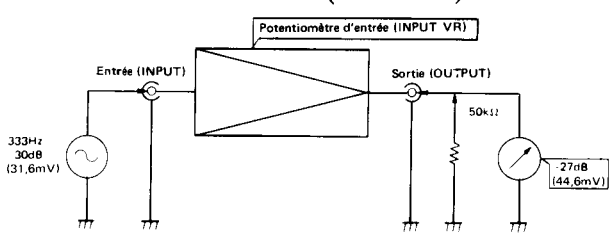
Procédure:

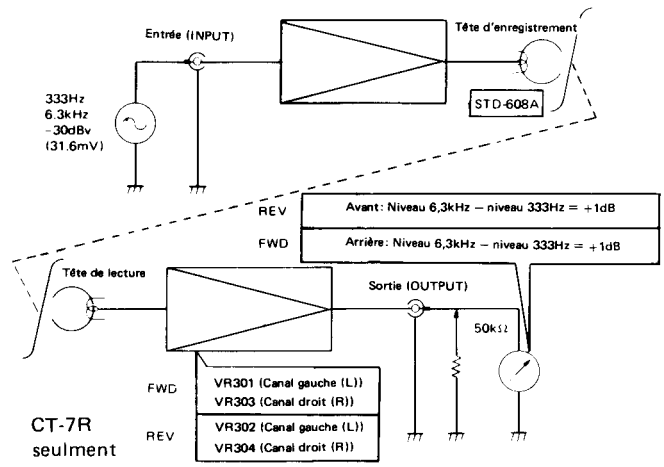
1. Régler le unité sur la position de défilement avant (FWD) et régler VR305 de manière à ce que le millivoltmètre alternatif indique 180mV.
2. De la même manière, régler le CT-7R sur la position de défilement arrière (REV) et vérifier que le millivoltmètre alternatif indique 180mV $^{+0}_{-40}$ mV.
   CT-7R seulment

RÉGLAGE DE LA REPONSE EN FREQUENCE D'ENREGISTREMENT/LECTURE

Montage:

Mode ..... Enregistrement
Enregistrement/lecture
Signal d'entree (à INPUT) ..... 333Hz, -30dBv (31,6mV)
6,3kHz, 30dBv (31,6mV)
Bande d'essai STD-608A
Millivoltmètre alternatif ..... Bornes de sortie (OUTPUT)





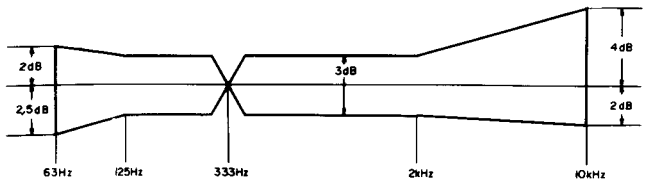
Procédure:

1. Régler le niveau d'entrée (INPUT) de manière à ce que le millivoltmètre alternatif indique -27dBv (44,6mV).
2. Placer le unite en position de défilement avant (FWD) puis enregistrer et lire les signaux d'entrée (333Hz et, 6,3kHz) sur STD-608A. Régler VR301 (canal de gauche (L)) et VR303 (canal de droite (R)), de manière à ce que la différence entre les deux soit de +1dB.
3. De la même manière, placer le CT-7R en position de défilement arrière (REV) puis enregistrer les signaux d'entrée (333Hz et 6,3kHz) sur STD-608A. Régler VR-302 (canal de gauche et VR304 (canal de droite), de manière à ce que la différence entre les deux sorties soit de +1dB.
   CT-7R seulment

* Comme indiqué dans les spécifications de la Fig. 5, vérifier que les performances correspondent aux spécifications.

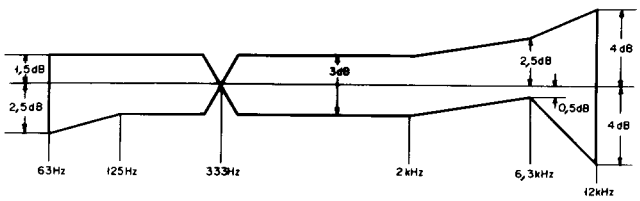
Réponse en fréquence

Utilisation de STD-341A, avec Dolby NR DECLENCHE
A cause de l'effet d'isolement, le canal de droite est compensé de -1dB à 63Hz et de -0,5dB à 125Hz.

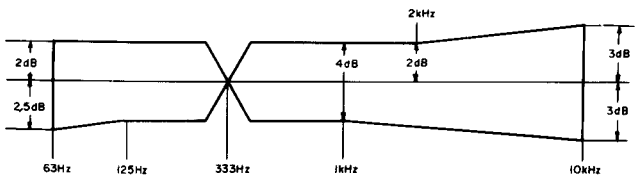


Réponse en fréquence globale

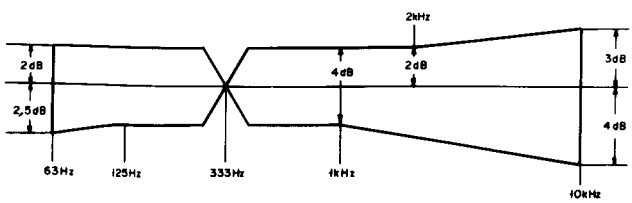
Utilisation de STD-608A, avec Dolby NR DECLENCHE



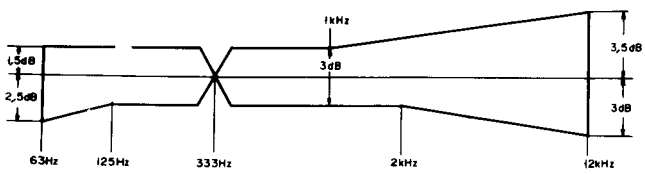
Utilisation de STD-608A, avec Dolby NR ENCLENCHE (type B)



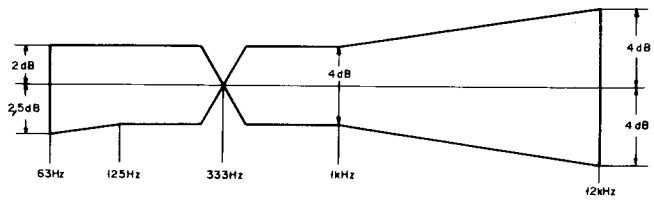
Utilisation de STD-608A, avec Dolby NR ENCLENCHE (type C)



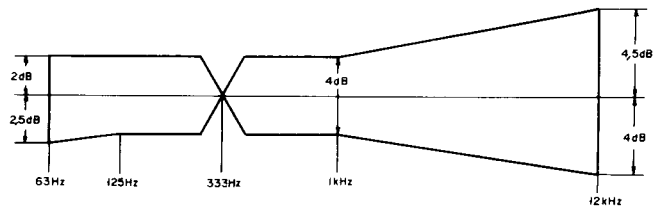
Utilisation de STD-603, avec Dolby NR DECLENCHE



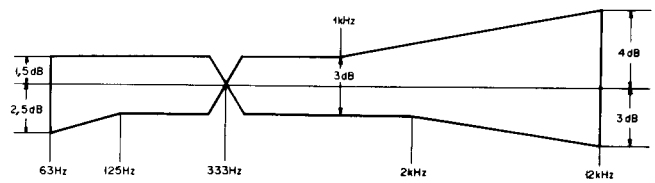
Utilisation de STD-603, avec Dolby NR ENCLENCHE (type B)



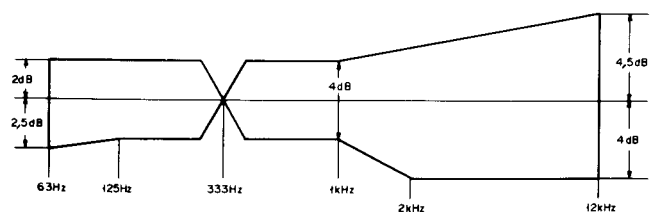
Utilisation de STD-603, avec Dolby NR ENCLENCHE (type C)



Utilisation de STD-604, avec Dolby NR DECLENCHE



Utilisation de STD-604, avec Dolby NR ENCLENCHE (type B)



Utilisation de STD-604, avec Dolby NR ENCLENCHE (type C)

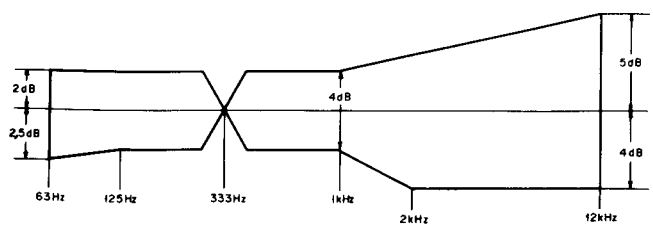


Fig. 5 Réponse en frequence

RÉGLAGE DU NIVEAU D'ENREGISTREMENT

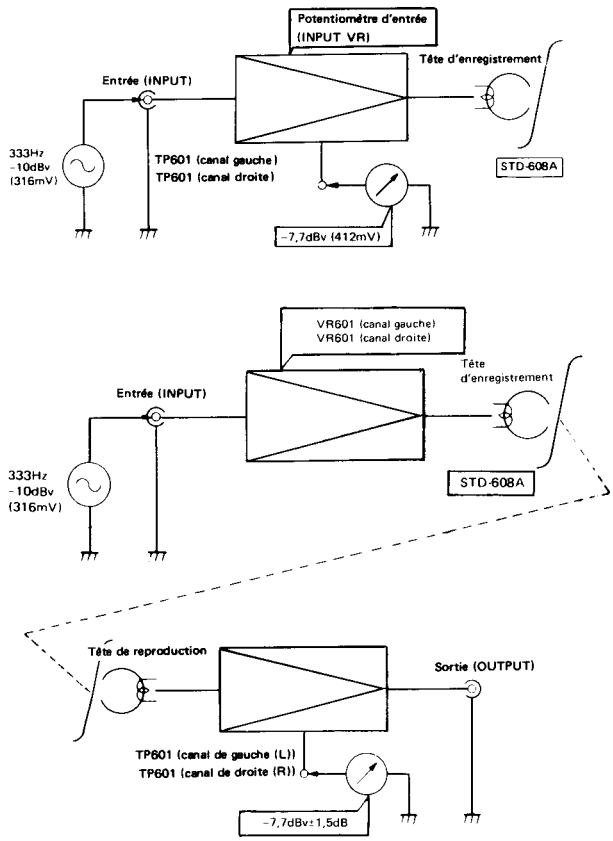
Montage:

Mode ..... Enregistrement
Enregistrement/lecture

Signal d'entrée
(à INPUT) ..... 333Hz, -10dBv
(316mV)

Bande d'essai ..... STD-608A (NORM)
STD-603 (CrO_2)
STD-604 (METAL)

Millivoltmètre
alternatif ..... TP601 de l'ensemble
Dolby NR de gauche
TP601 de l'ensemble
Dolby NR de droite



Procédure:

1. Installer la bande d'essai STD-608A et régler le niveau d'entrée (INPUT) de manière à ce que le millivoltmètre alternatif indique -7,7dBv (0,41V).
2. Placer le commutateur Dolby NR sur la position ON (enclenché). Placer le unité en position de défilement avant (FWD) puis enregistrer et lire le signal d'entrée sur STD-608A. Régler VR601 (canal de gauche) et VR601 (canal de droite) de manière à ce que le millivoltmètre alternatif indique -7,7dBv (0,41V).
3. Installer la bande d'essai STD-603 et placer le commutateur Dolby NR sur la position ON (enclenché), puis enregistrer et lire le signal d'entrée sur STD-603. Vérifier que le millivoltmètre alternatif indique -7,7dBv ±1,5dB.
4. Installer la bande d'essai STD-604 et placer le commutateur Dolby NR sur la position ON (enclenché), puis enregistrer et lire le signal d'entrée sur STD-604. Vérifier que le millivoltmètre alternatif indique -7,7dB ±1,5dB.

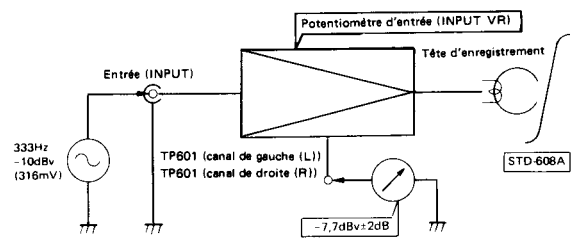
CONTRÔLE DE L'INDICATEUR DE NIVEAU

Montage:

Mode ..... Enregistrement/pause

Signal d'entrée
(à INPUT) 333Hz, 10dBv
(316mV)

Millivoltmètre
alternatif ..... TP601 de l'ensemble
Dolby NR de gauche
TP601 de l'ensemble
Dolby NR de droite



Procédure:

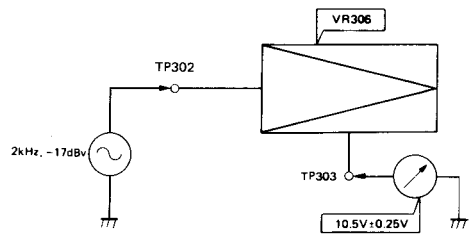
Régler le niveau d'entrée (INPUT) de manière à ce que l'indicateur de niveau affiche 0 VU. Contrôler alors que le millivoltmètre alternatif indique -7,7dBv±2dB.

RÉGLAGE DE LA DETECTION D'AMORCE (CT-7R seul)

Etape 1.

Montage:

Mode ..... Arrêt (STOP)
Signal d'entrée ..... 2kHz, - 17dBv (onde sinusoïdale de 0,4Vc-c) à TP302 de l'ensemble principal
Millivoltmètre continu ..... TP303 de l'ensemble principal



Procédure:

1. Retirer le connecteur CN315 de l'ensemble principal.
2. Régler VR306 de manière à ce que le millivoltmètre continu indique 10,5V ±0,25V.
3. Remettre le connecteur CN315 à sa position originale.

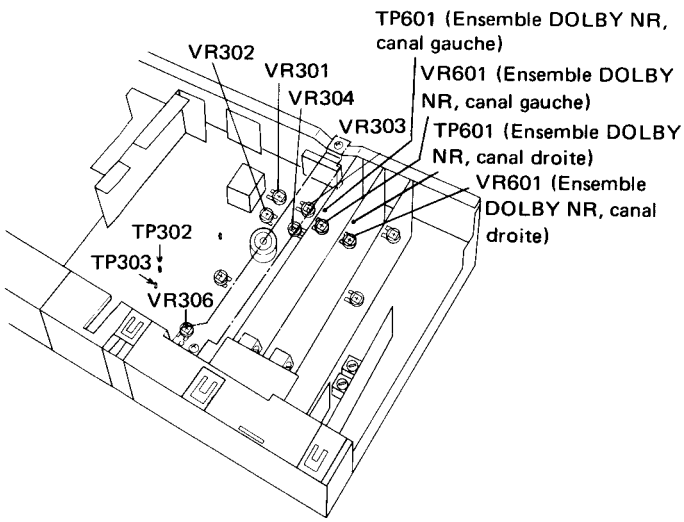
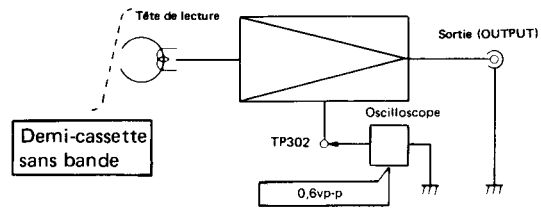


Fig. 6 Points de réglage

Etape 2.

Montage:

Mode ..... Lecture
Bande ..... Demi-cassette sans bande
Oscilloscope ..... TP302 de l'ensemble principal



Procédure:

1. Vérifier que le oscilloscope indique - 10dBv (onde carrée de 0,6Vc-c).
2. Si la valeur - 10dBv est dépassée, ponter par soudure la partie indiquée à la Fig. 7.

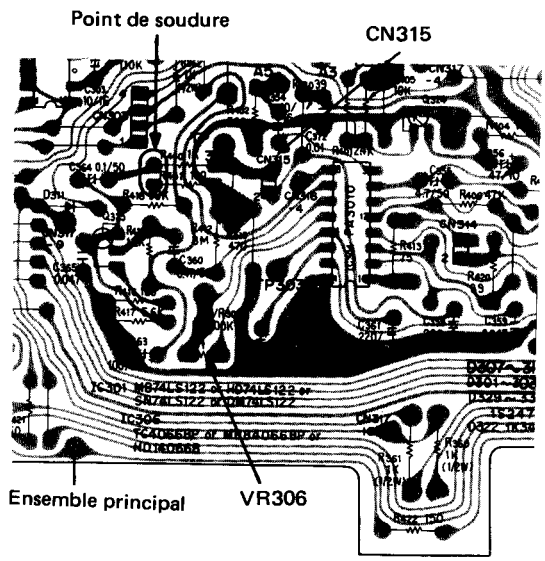


Fig. 7 Point de soudure

AJUSTES ELÉCTRICOS

Precauciones

1. Deberán completarse los ajustes mecánicos.
2. Limpiar las partes siguientes con algodón humedecido en alcohol: cabeza de grabación/reprodución, rodillo de arrastre, cabeza de borrado, correas de goma y eje de arrastre.
3. Desmagnetizar la cabeza de grabación/reproducción con un desmagnetizador de cabezas.
4. No utilizar destornilladores magnetizados para los ajustes.
5. Los ajustes y las mediciones deberán realizarse para la tensión nominal de suministro de los canales izquierdo y derecho.
6. Los ajustes deberán realizarse en el orden dado en este manual de servicio. Si se altera el orden los ajustes pueden resultar inútiles, dando como resultado una pérdida de rendimiento.
7. El nivel durante las mediciones se basa en 0dBv = 1V. Conectar un resistor fícticio de 50Kohmios a los terminales de salida (OUTPUT).
8. Dejar que el unidad se precaliente durante algunos minutos antes de proceder con el ajuste.
9. Poner el interruptor de reducción de ruido Dolby (DOLBY NR) en la posición OFF a menos de que se diga otra cosa.

Equipos/herramientas de pruebas requeridos:

1. Cinta de prueba
   - STD-331A ..... Para el propósito de reporoducción general.
   - STD-341A ..... para el ajuste de reproducción
   - STD-608A ..... cinta NORMAL en blanco
   - STD-603 ..... cinta CrO_2 en blanco
   - STD-604 ..... cinta de METAL en blanco
2. Oscilador sonoro
3. Milivoltímetro de CA (AC mV)
4. Atenuador
5. Osciloscopio
6. Resistor de 50Kohmios (1/4W)

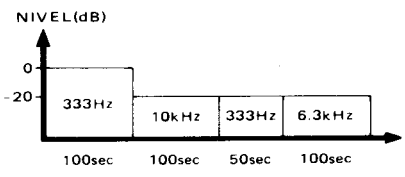


Fig. 1 Contenido de la cinta de prueba STD-341A

AJUSTE DEL AZIMUT DE LA CABEZA

Ajuste:

Modo ..... Reproducción (FWD y REV)
Cinta de prueba ..... STD-341A, parte de 10kHz
Voltímetro de CA .... Terminales OUTPUT (escala de mV)
VR501, VR502 ..... Máx.

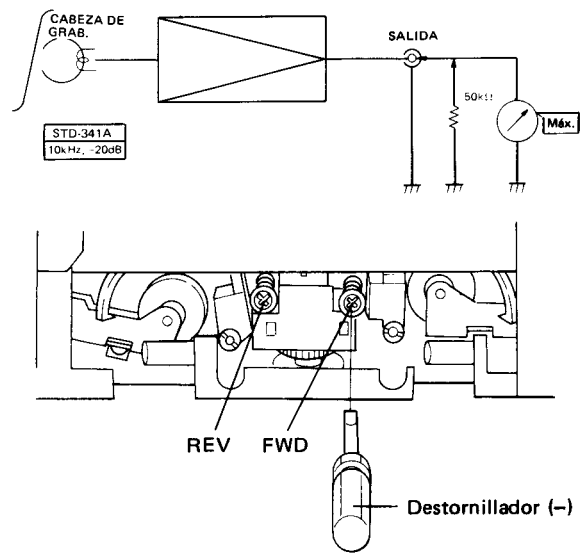


Fig. 2 Preajuste del azimut

Procedimiento:

Poner una cinta en reproducción en ambas direcciones, de ida y retorno. Ajustar el tornillo del azimut de la cabeza hasta la posición que ofrezca el mayor nivel de salida.

AJUSTE DEL TRANSPORTE DE LA CINTA

1. Insertar un casete provisto de espejo.
2. Poner el selector DIRECTION en la posición FORWARD y el de modo en PLAY.
3. Ajustar la tuerca de ajuste ❶ de modo que no oscile la quía de la cabeza REC/PB ni la quía de la cabeza de borrado como muestra la figura 3.
4. Poner el selector DIRECTION en la posición REVERSE.
5. Ajustar la tuerca de ajuste ❷ de modo que no oscile la quía de la cabeza REC/PB ni la quía de la cabeza de borrado
6. Poner la cinta en reproducción en ambas direcciones, de ida y retorno, y comprobar que no ocurra oscilación en la cinta.

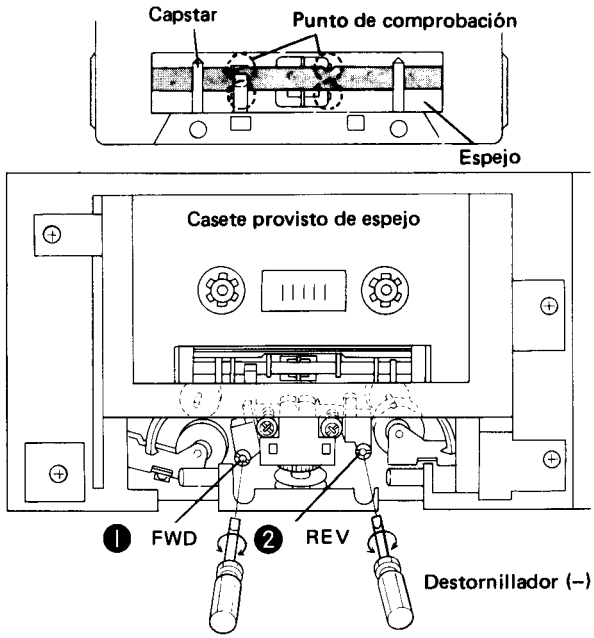


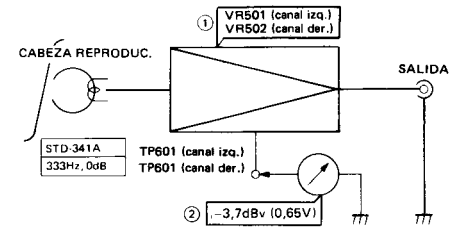
Fig. 3 Ajuste del transporte de la cinta

AJUSTE DEL NIVEL DE REPRODUCCION

Puesto que este ajuste determina el nivel de reducción de ruido DOLBY de grabación, deberá realizarse de modo prociso.

Ajuste:

Modo ..... Reproducción (FWD)
Cinta de prueba ..... STD-341A, posición 333Hz, 0dB
Voltímetro de CA .... TP601 del conjunto L
(escala de mV) de DOLBY NR
TP601 del conjunto R
de DOLBY NR



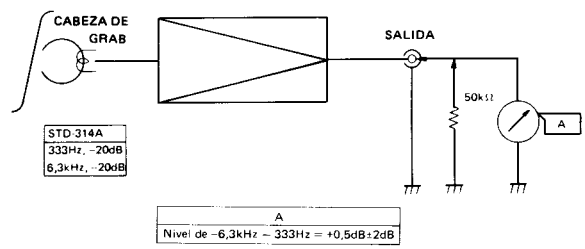
Procedimiento:

Ajustar el VR501 (canal izq.) y el VR502 (canal der.) del conjunto del AMP de modo que el voltímetro de CA indique -3,7dBv (0,65V).

COMPROBACIÓN DEL ECUALIZADOR DE REPRODUCCIÓN

Ajuste:

Modo ..... Reproducción (FWD y REV)
Cinta de prueba ..... STD-341A, posiciónes 333Hz y 6,3kHz
Voltímetro de CA .... Terminales OUTPUT
(escala de mV)



Procedimiento:

Poner en reproducción la cinta de prueba en las posiciones de 333Hz y 6,3kHz. Comprobar que la diferencia entre los dos niveles de salida no soprepase +0,5dB ± 2dB.

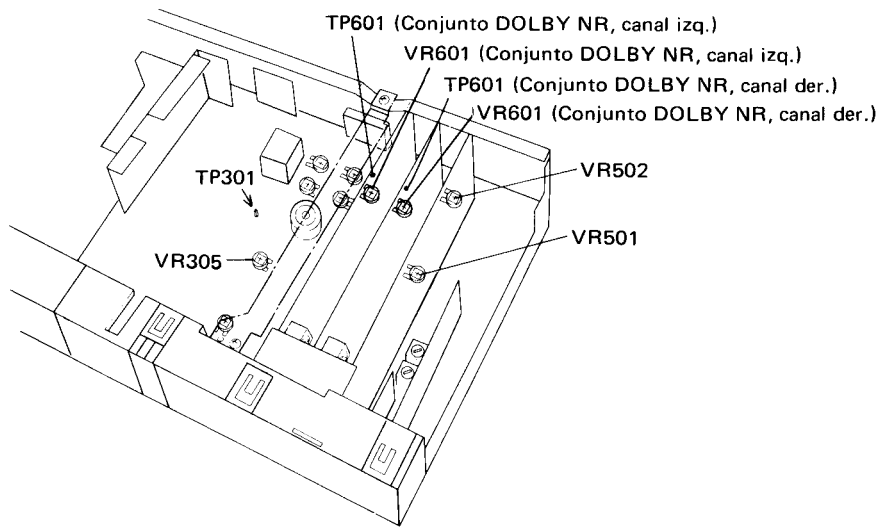


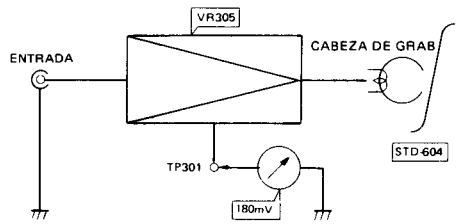
Fig. 4 Puntos de ajuste

AJUSTE DE LA CORRIENTE DE BORRADO

El procedimiento de ajuste es el mismo para ambas direcciones, FWD y REV, pero si existe alguna diferencia entre las dos indicaciones, ajustar de modo que la inferior de ellas sea 180 mV $^{+0}_{-40}$ mV.

Ajuste:

Modo ..... Grabación
Control del nivel ..... Min.
de entrada
Voltímetro de CA .... TP301 del conjunto
(escala de mV) principal
Cinta de prueba STD-604



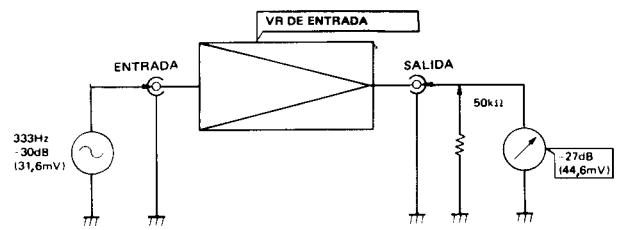
Procedimiento:

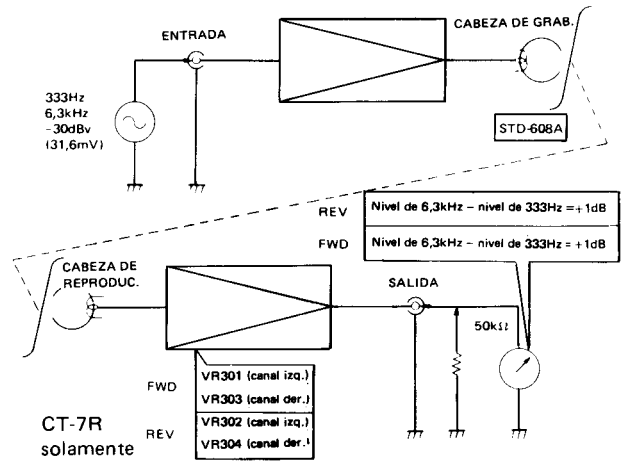
1. Ajustar el unidad en la posición FWD y el VR-305 de modo que el voltímetro de CA indique 180 mV.
2. De igual forma, ajustar el CT-7R en la posición REV y confirmar que el voltímetro de CA indique 180 mV $\pm ^{0}_{4,0}$ mV.
   CT-7R solamente

AJUSTE DE LA RESPUESTA EN FRECUENCIA DE GRABACIÓN/REPRODUCCIÓN

Ajuste:

Modo ..... Grabación
Grabación/reproducción
Señal de entrada ..... 333Hz, - 30dBv
(desde INPUT) (31,6 mV)
6,3kHz, −30dBv
(31,6 mV)
Cinta de prueba STD-608A
Voltímetro de CA .... Terminales OUTPUT
(escala mV)





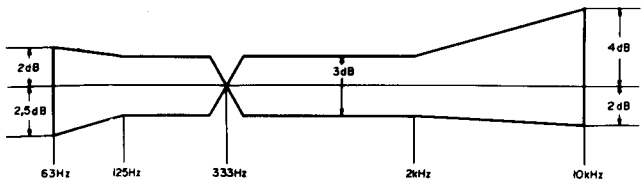
Procedimiento:

1. Ajustar el control de nivel de entrada de modo que el voltímetro de CA indique - 27dBv (44,6 mV).
2. Ajustar el unidad en la posición FWD y grabar y reproducir señales de entrada (333Hz y 6,3kHz) en la STD-608A. Ajustar el VR301 (canal izq.) y el VR303 (canal der.) de modo que la diferencia entre ambos sea de +1dB.
3. De igual forma ajustar et CT-7R en la posición REV y grabar y reproducir señales de entrada (333Hz y 6,3kHz) en la STD-608A. Después, ajustar el VR302 (canal izq.) y el VR304 (canal der.) de modo que la diferencia entre las dos salidas sea de +1dB. CT-7R solamente

* Como indica en las especificaciones de la figura 5, comprobar que el rendimiento satisfaga dichas especificaciones.

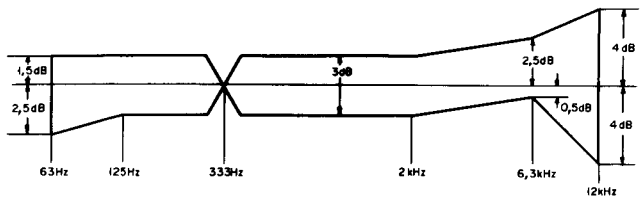
Respuesta en frecuencia

Utilizando la STD-341A con el interruptor DOLBY NR en la posición OFF
El canal izquierdo se compensa en -1dB a 63Hz y a -0,5 a 125Hz debido al efecto de aislamiento.

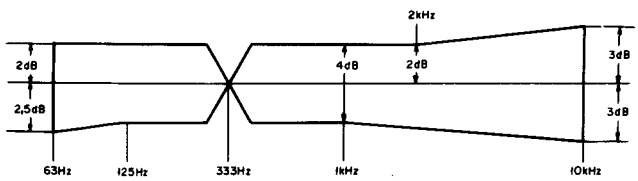


Repuesta global en frecuencia

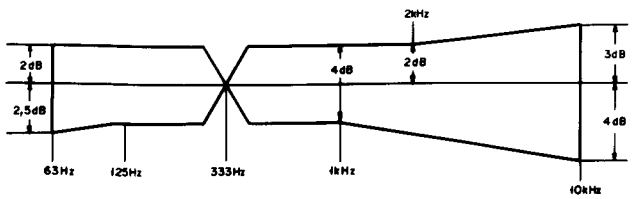
Utilizando la STD-608A con el interruptor DOLBY NR en la posición OFF.



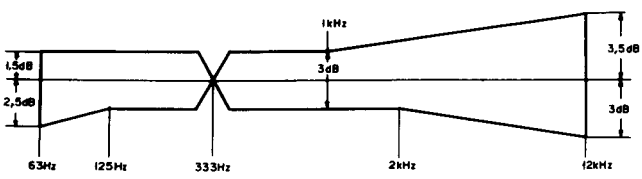
Utilizando la STD-608A con el interruptor DOLBY NR en la posición ON (tipo B).



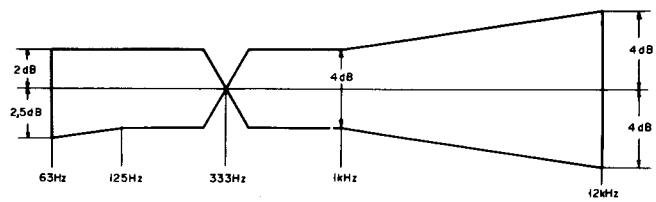
Utilizando la STD-608A con el interruptor DOLBY NR en la posición ON (tipo C).



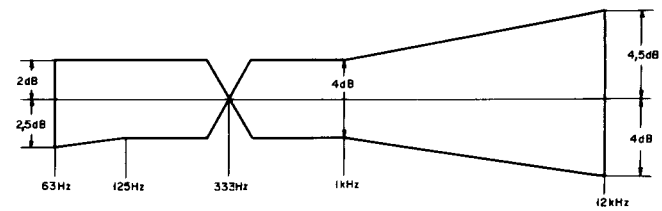
Utilizando la STD-603 con el interruptor DOLBY NR en la posición OFF.



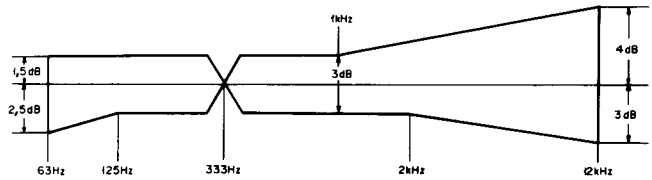
Utilizando la STD-603 con el interruptor DOLBY NR en la posición ON (tipo B).



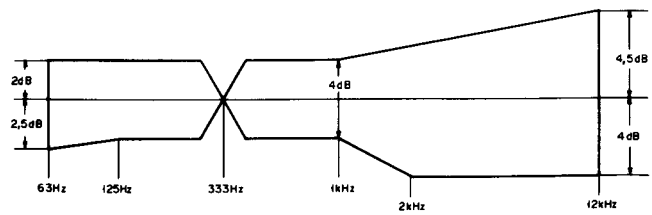
Utilizando la STD-603 con el interruptor DOLBY NR en la posición ON (tipo C).



Utilizando la STD-604 con el interruptor DOLBY NR en la posición OFF.



Utilizando la STD-604 con el interruptor DOLBY NR en la posición ON (tipo B).



Utilizando la STD-604 con el interruptor DOLBY NR en la posición ON (tipo C).s

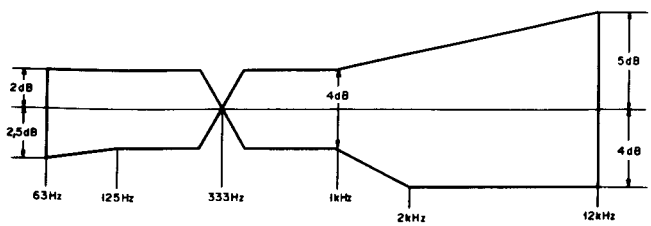
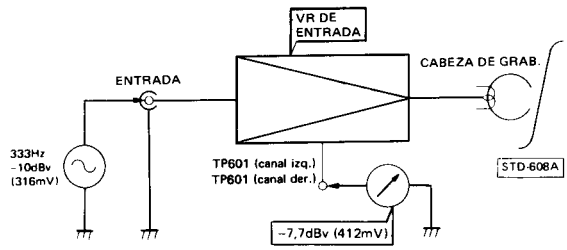


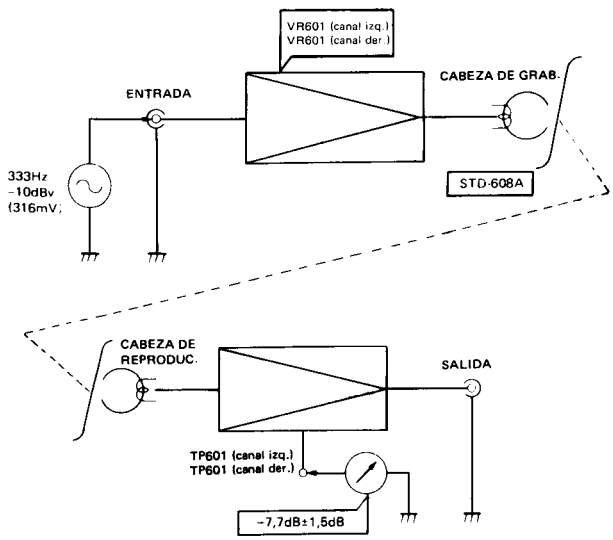
Fig. 5 Respuesta en frecuencia

AJUSTE DEL NIVEL DE GRABACIÓN

Ajuste:

Modo	Grabación Grabación/reproducción
Señal de entrada	333Hz, -10dBv
(desde INPUT)	(316 mV)
Cinta de prueba	STD-608A (NORM) STD-603 (CrO_2) STD-604 (METAL)
Voltímetro de CA	TP601 del conjunto L
(escala de mV)	de DOLBY NR TP601 del conjunto R de DOLBY NR





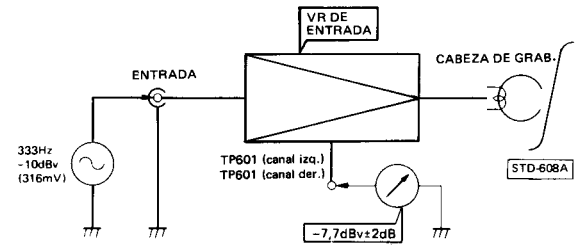
Procedimiento:

1. Poner la cinta de prueba STD-608A y ajustar el control de nivel de entrada (INPUT) de modo que el voltímetro de CA indique -7,7dBv (0,41V).
2. Poner el interruptor DOLBY NR en la posición ON. Ajustar el unidad en la posición FWD y grabar y reproducir señales de entrada en la STD-608A. Ajustar el VR601 (canal izq.) y el VR601 (canal der.) de modo que el voltímetro indique -7,7dBv (0,41V).
3. Poner la cinta de prueba STD-603 y el interruptor DOLBY NR en la posición ON y el grabar y reproducir señales de entrada en la STD-603. Confirmar que el voltímetro de CA indique -7,7dBv±1,5dB.
4. Poner la cinta de prueba STD-604 y el interruptor DOLBY NR en la posición ON y grabar y reproducir señales de entrada en la STD-604. Confirmar que el voltímetro de CA indique -7,7dBv±1,5dB.

COMPROBACIÓN DEL MEDIDOR DE NIVEL

Ajuste:

Modo	Pausa de grabación
Señal de entrada	333Hz, -10dBv
(desde INPUT)	(315 mV)
Voltímetro de CA	TP601 del conjunto L
(escala mV)	de DOLBY NR TP601 del conjunto R de DOLBY NR



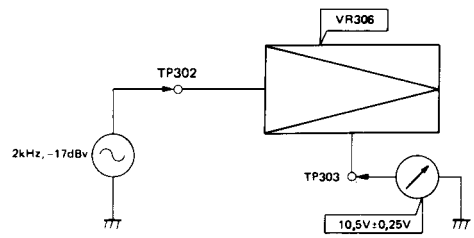
Procedimiento:

Ajustar el control de nivel de entrada (INPUT) de modo que el medidor de nivel indique 0 VU. Después comprobar que el voltímetro de CA indique -7,7dBv ± 2dB.

AJUSTE DE DETECCIÓN DE LA CINTA GUIA (CT-7R solamente)

Ajuste.

Modo ..... Parada
Señal de entrada ..... 2kHz, - 17dBv (0,4V P-P, onda senoidal) a TP302 del conjunto principal
Voltímetro de CA (escala mV) .... TP303 del conjunto principal



Procedimiento:

1. Extraer el conector CN315 del conjunto principal.
2. Ajustar el VR306 de modo que el voltímetro de CA indique 10,5V ± 0,25V.
3. Volver a poner el conector CN315 en su posición original.

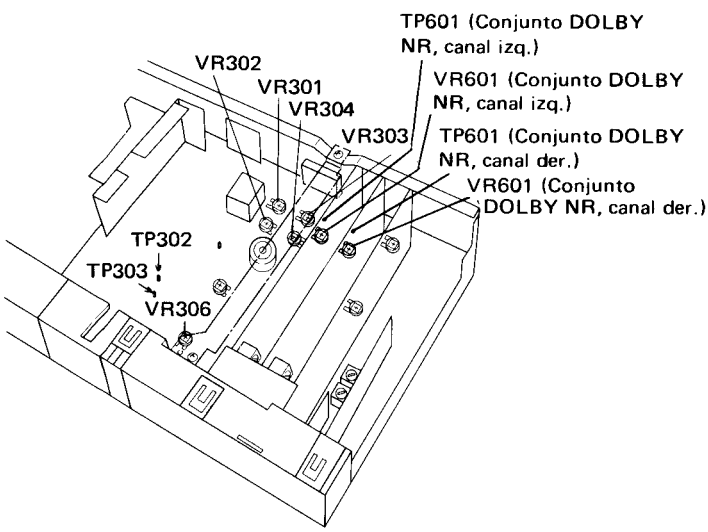
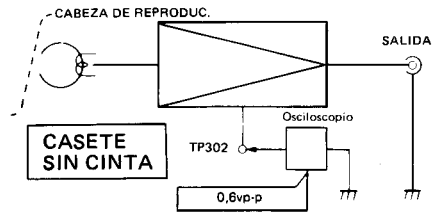


Fig. 6 Puntos de ajuste

Paso 2.

Ajuste:

Modo ..... Reproducción
Cinta ..... Casete sin cinta
Osciloscopio ..... TP302 del conjunto principal



Procedimiento:

1. Confirmar que el osciloscopio indique - 10dBv (0,6V P-P, onda cuadrada).
2. Si se sobrepasan los 10dBv, puentear la sección mostrada en la figura 7 mediante soldadura.

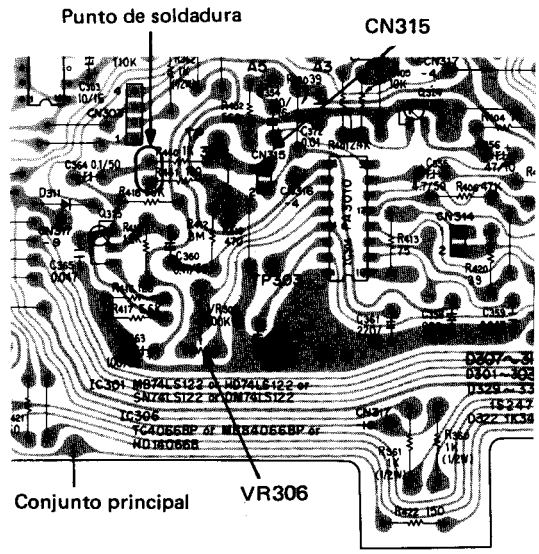


Fig. 12-7 Punto de soldadura